

# Furniture & cabinetmaking

DESIGN • INSPIRATION • PROJECTS • TECHNIQUES • TESTS • NEWS • EXCELLENCE

**Working at  
the right height**

## **Construct Jeff Miller's benchtop bench**



### **Precision instrument**

How to make a brass-bound  
spirit level from scratch

### **Return to glory**

18th century walnut  
chest on stand restored



**Saw sharpening Q&A**



**Japanese temple joints**



**SawStop set-up**



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A man in a green sweater is working at a large industrial machine in a workshop. The machine has a large circular blade and a dust extraction system. The background shows various workshop equipment and materials.

MARK KILROY

**”** "Doing it well is really important and this machine has enabled me to push myself to become better at what I do"

A wooden desk with a curved front and a small drawer. The desk is made of solid wood and has a smooth finish.

# FINE FURNITURE WITH THE C3 31

## MARK KILROY USES ONLY THE BEST TO ACHIEVE PERFECTION

Mark Kilroy is a manufacturer of fine furniture. After training with David Savage, a fine furniture maker located in Devon, he subsequently completed a course with Dennis Sutton, further refining his skills. Having worked professionally for a number of years, Mark now makes furniture as a hobby, with all of his creations made in solid wood. He has made numerous components for his own kitchen and has made a stunning desk for his wife. A chest of draws with handmade veneers is one of his recent projects.

There are certain things that stand out with this machine and they are absolutely essential for a machine of this calibre. It is a decent and reliable saw and the planer and spindle are amazing. "Doing it well is really important and this machine has enabled me to push myself to become better at what I do".

When Mark was looking for a machine to purchase, he explained his meticulous research process and found that compared to others; the Hammer C3 31 was better made and better engineered. He stated that it is "significantly at the higher end of hobby machines". Passionate about producing quality,

Mark says his C3 31 is the absolute centre of his workshop and it does everything he wants it to do. "I can run it for hours at a time, not to mention the spindle which has a lot of power and is just amazing for curved work."

"The C3 31 is a brilliant machine which is simply super. I enjoy using it and I like to be around it. With most machines there is always something that lets it down, but this one has no vices and is easy to operate."



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# Welcome to...

## Tools you can't do without

**A** while back we used to run a regular feature called 'The Tool I Can't do Without'. It ran for about a year and then petered out when folk started selecting things like a pencil or masking tape. Don't get me wrong, these are all good tools in their own right, but way too cryptic in relation to the question. In hindsight, we should have followed up with a second question: 'And would this be the thing you'd grab as you head for the door in the event of a fire?' In the same way that when something appears to be too good to be true, it usually is, a simple question usually has a simple answer. Overthinking can ruin a perfectly good thought.

### Go-to tools

Incidentally there are no plans to bring this feature back, although I wouldn't mind guessing that if we asked the same people the same question now, we'd get very different answers. Back then, my choice would probably have been a Lumix compact camera but since then the picture quality – not to mention the editing capability – on my iPhone has expanded beyond those of the Lumix, which I still have, so I'd probably go for something obvious like a tool. Applying the second question complicates things somewhat as very few tools are of much use on their own. Would holding a hammer knee deep in smouldering ash instead of a workshop feel like you'd made the right choice?

In the true spirit of question one, this month I would choose my Lamello P2 Zeta as it has hardly been out of my hand. If you work alone and struggle to assemble large items of case furniture, you might want to weigh this option up. For the one-man band with a pathological hatred of sash clamps, this machine has turned out to be a game changer over the last few years.

All good relationships hit the occasional rocky patch and ours came when I machined about 100 slots for P15 connectors only to be told by my default supplier that the P15 had been discontinued in favour of the P14. For those not acquainted with the Zeta, the two sizes are not interchangeable and a quick fix is



PHOTOGRAPH BY GMC/DEREK JONES

never going to be a satisfactory one. After some shopping around, I eventually found a supplier who does stock the larger size and has no intention of discontinuing them. If you find yourself in a similar predicament, try Scott & Sargeant – [www.scosarg.com](http://www.scosarg.com). Rather annoyingly, the P15 drilling guide supplied with the Zeta has to be replaced with a new one to work with the P14 for best results. You can get by without it and at £60 for the replacement, I'll probably get by for a bit longer.

### A challenging project

We've got a project with a difference this month in that you have a couple of options should you wish to take

up the challenge. This will be Aaron Moore's third article and second project for *F&C* and one that will test your skills to the very limit. Is it complicated? No, not really. Will it require a number of specialist tools to complete? Probably not. Will you gain awareness of some gateway skills that will put you in a different league once you've mastered them? Most definitely.

**My Lamello P2 Zeta has hardly been out of my hand this month**

**Derek Jones**  
[derekj@thegmcgroup.com](mailto:derekj@thegmcgroup.com)

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Woodworking is an inherently dangerous  
pursuit. Readers should not attempt the  
procedures described herein without  
seeking training and information on the  
safe use of tools and machines, and all readers should  
observe current safety legislation.

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Front cover image courtesy of Tom Bernal © The Taunton Press

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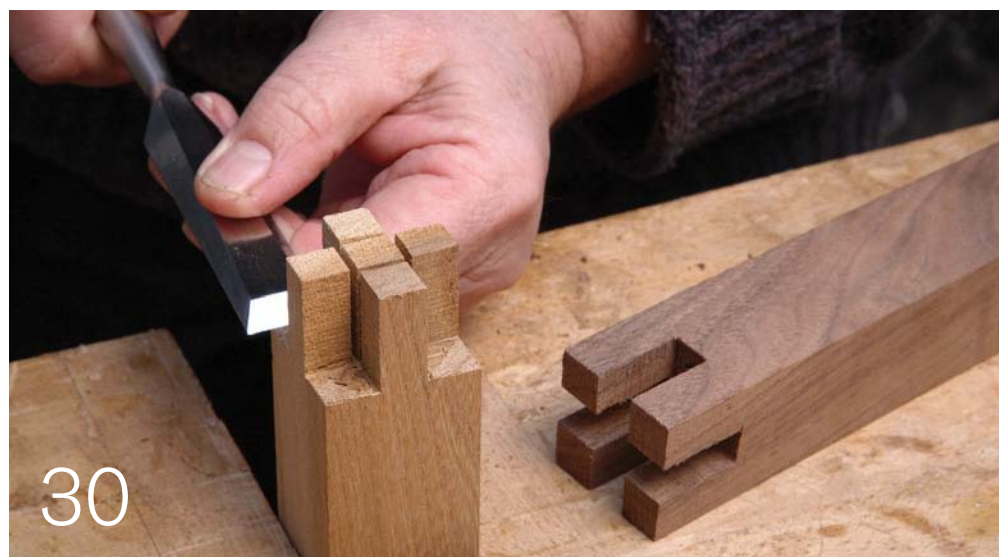
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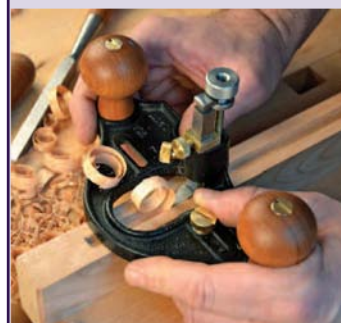
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# News & Events

## Yuri Karpov marquetry lecture

At the end of January this year, Yuri Karpov from Golden Hands gave an interesting lecture-demonstration on marquetry at Broxburn Woodturning Club, West Lothian, Scotland.

Yuri explained how the technique was developed from the mediaeval method used in Italy and elsewhere, of inlaying coloured 'hard stone' into marble – known as Pietra Dura. This was successfully adopted by the French and in the 18th century became extremely fashionable in Western Europe. Yuri explained in detail how marquetry is distinct from inlay, where veneers are attached to a substrate that need not be flat, whereas in inlay, whole sections of wood are replaced by others of different colours and grains.

He went on to show a variety of styles and patterns that could be achieved before going on to introduce the tools of the trade. The knife

favoured by Yuri, he makes himself from HSS steel and a wooden handle that tapers from a fairly wide, angled flat useful for pressing down the veneer to a pen-sized end close to the blade, upon which considerable

pressure can be exerted.

It was a polished performance from an enthusiast and specialist, who clearly is enthralled by the technique. To contact Yuri for further questions, see [www.golden-hands.org](http://www.golden-hands.org).



Yuri giving his marquetry lecture at Broxburn Woodturning Club, Scotland

## IRWIN Tools launches 2015 National Tradesmen Day



Win prizes with 2015 National Tradesmen Day

Calling all trades professionals! Now in its fifth year, IRWIN Tools' National Tradesmen Day 2015 will take place on 18 September, 2015 and celebrates exceptional individuals who go above and beyond to achieve the best results and make a positive impact within the industry.

National Tradesmen Day is a global initiative founded by IRWIN to applaud and encourage the workforce who work behind the scenes to keep the country running strong. As part of the initiative, a variety of in-store promotions, giveaways and events will be taking

place throughout the year with the grand prize winner announced on the day itself.

To nominate a tradesman who you think is worthy of the '2015 Ultimate Tradesman' title visit [www.irwin.co.uk/nominate](http://www.irwin.co.uk/nominate) and explain why. The overall winner will receive the grand prize of a 2015 Ford 4x4 and runners up will each receive an NFL Wembley Experience including premium tickets and a three course meal. All nominations will be judged by the IRWIN Xpert's panel of industry experts. The winner will be announced on 18 September at the Toolfair Elex in Coventry with last nominations accepted online up until 31 August, 2015.

Also, until 31 May IRWIN Jack saws will include details on how to claim guaranteed instant win prizes. Simply purchase a saw and follow the instructions to claim an IRWIN T-shirt or impact bit.

To keep up-to-date on IRWIN's campaign to celebrate National Tradesmen Day, visit [www.irwin.co.uk](http://www.irwin.co.uk).



# Kevin Stamper exhibits at Design Shanghai

Kevin Stamper is preparing to exhibit his distinctive and exciting fine furniture at Design Shanghai, which takes place from 27–30 March, 2015.

Contemporary furniture of the highest quality is an area where British design excels. Kevin, already a seasoned international exhibitor, is revered among his peers, making him an excellent ambassador for his craft. His work is beautifully decorative and uses the latest technology to create individual pieces that make his work truly 21st-century design. He will be showcasing brand-new work that develops his unique style while still retaining his trademark bright colour palette.

Design Shanghai 2015 is hailed as China's premier design event, presenting even more of the finest international furniture design to top architects, interior designers, developers, facilities managers and private buyers.

For more information see [www.kevinstamperfurniture.com](http://www.kevinstamperfurniture.com) or [www.designshowshanghai.com](http://www.designshowshanghai.com).



Kevin Stamper's 'Morning Storm', sideboard and mirror

PHOTOGRAPH COURTESY OF KEVIN STAMPER

## TIMBER TRADE NEWS Deer



Fallow deer in field

PHOTOGRAPHS COURTESY OF NIKEROLA COMMONS



An Indian muntjac

## Saxonby supports green wood courses

During the process of pruning and felling trees at its Besford Gardens development in Shrewsbury, Saxonby was approached by Mark Eccleston from Pics and Sticks, who offered to make a bench for their reception area. Always keen to recycle material, director James Wood also ordered a second piece and pleased with the results, he decided that Saxonby could add its support to this sector of the British economy which, due to its specialist nature has at times, struggled to remain sustainable. However, despite barriers such as a lack of interest particularly among young people to enter the industry, there are positive signs.

The directors of the company and Mark Eccleston hold a firm belief in keeping traditional skills alive, so the provision of funding for the courses Mark is running will be a worthwhile contribution to maintaining not only his livelihood but also potentially lighting a spark for other people to consider taking up a

craft-based career. For more information about the one-day introduction to green woodworking courses, see [www.picsandsticks.co.uk](http://www.picsandsticks.co.uk).



From the back, left to right, clockwise: James Wood, Saxonby, Mark Eccleston, Pics and Sticks, Andrew Copson, Saxonby, John Brown and Matthew Hill, Floreat Homes

PHOTOGRAPH COURTESY OF STELLA SIX

## Businessman brings timber firm in to the 21st century with new app release

UK timber and panel supply specialists Clarks Wood Company and Y Goldberg & Sons are celebrating the launch of their new app, a first for the companies which operate under the successful Premier Forest Group umbrella. Manager Phill Steadman is behind the new development, creating and managing the app himself. The app aims to provide customers with fresh ways of accessing quotes, viewing product guides and keeping up to date with the latest offers.

Phill said: "The public's perception of a traditional timber company with over 200

years' trading history such as ours isn't necessarily one of innovation and creativity. As many businesses are making the transition into a more digitalised world, we are keen to show that we are just as current as any other industry out there. The app makes it much easier for us to update our offers and latest news, keeping our customers far more informed. Our hope is that the app will now be a complete hub of information, available on the move."

The app is now available for Apple devices and can be downloaded for free from the App Store. See <https://itunes.apple.com>.

There are three native deer species in the UK: red, fallow and roe and also some recently introduced species including muntjac. They are large herbivores, feeding mainly on grass and other plants, but also young trees. Although generally loved by the public for their *Bambi* image, they are disliked by foresters who have to go to much expense to keep them from destroying young trees. Farmers also suffer from the damage done by deer, especially to turnips, potatoes and cabbages. They are shy animals, living mostly in woodland except for red deer, which also live on moorland and are more numerous than most people would think.

There are no native predators and foresters have to carry out culls to keep the numbers down. Among common tree species oak (*Quercus spp.*), ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), willow (*Salix spp.*) and Scots pine (*Pinus sylvestris*) are particularly susceptible. Deer alter the local vegetation by selectively eating certain plants: for example, muntjac love bluebells and some orchids. They also have a knock-on effect on the local fauna, particularly insects, which feed on their preferred plants, including trees. They have no direct effect on the quality of timber used by woodworkers, but the high cost of fencing them out puts up timber prices.

Chris Prior

# Brown antique furniture storms to revival in the auction rooms

After the years of austerity and modernism, 'brown' furniture – as it has been dubbed in the press – is throwing off the shackles and taking its rightful place in the heart of the home.

The *Antique Collectors* magazine stated: "Minimalist fashion no longer exerts the all-powerful sway that it imposed on interiors." This swing away from sleek and modern is paving the way to a return to indulgent and luxurious interiors where antiques are a statement piece, rather than an unloved item even the charity shops won't take away.

We are seeing the green shoots of change filter down through the salerooms and out into our homes. Lincolnshire's leading provincial auctioneers and valuers Golding Young has already seen the revival in action with brown furniture values far exceeding market expectations in the first two sales of the year.

Colin Young, managing director and principal auctioneer and valuer shared his thoughts on the market: "It's perhaps time to kick out all of the old clichés. We've seen traditional furniture fly out of the door at prices we haven't seen for years. At the Grantham sale we had a set of 17th-century oak (*Quercus spp.*) chairs – lot 185 – which fit the 'brown' furniture label better than most. They were rather good with deep seats, good turning and decoration, but perhaps not suited to the light coloured décor we associate with 90% of the houses up and down the country today. With modest expectations they flew at £500."

Victorian furniture also fared well with a



Lot 185 at Golding Young auctioneers, a set of 17th-century oak-framed leather dining chairs

mahogany (*Khaya ivorensis*) wind-out dining table – lot 56 – which had previously struggled to achieve interest now had multiple bidders taking it to £850 at the Bourne Auction Rooms. Retro furniture was once more flavour of the month with a Newton & White sideboard – lot 196 – again having much competition and achieving £240.

Some question whether it's too early to be talking about green shoots, but the signs can't be ignored. There is undoubtedly a revival storming through the salerooms as we turn towards creating a warmer more luxurious look within our homes. For more information, see [www.goldingyoung.com](http://www.goldingyoung.com).

## 'The Observatory' installed in first location on the South Downs

A mobile artist studio and workshop, designed by four architecture graduates at FCBStudios, have been installed in their first location at the Winchester Science Centre on the South Downs. Providing space for artists in residence for up to two months at a time, the study and the workshop will move to three different locations in England's South coast over the next two years.

Inspired by the works of Sol Le Wit and Antonello da Messina's painting of the scholar, *St Jerome in His Study*, The Observatory comprises two volumetric landmarks, which sit lightly within outstandingly beautiful landscapes. The two structures, the study and the workshop, sit on rotating bases, which allow the artist and audience to frame various views, creating a changing relationship of the architectural proposal to the landscape.

Both structures are also made of highly durable materials and are serviced sustainably. Internally, both spaces are clad in Accoya, an acetylated wood, which is highly durable and weatherproof. The Observatory is a project commissioned by SPUD, designed by FCBStudios.



The Observatory will move to four different locations

and realised through the collaboration with skilled craftsmen, engineers and many other supporters. The temporary structures will move to four different locations along England's south coast and will house multidisciplinary artists in residence for up to two months at a time.

For more information on these structures, see [www.fcbstudios.com](http://www.fcbstudios.com).

## Is your PPE the real deal?

Despite several warnings recently about counterfeit and inferior personal protective equipment (PPE) finding its way into UK workplaces, the problem appears to be growing according to workplace equipment supplier Slingsby.

The company is warning businesses to be extra vigilant when purchasing PPE and says it welcomes proposed legislation that would make retailers and distributors responsible for ensuring products they sell meet the required safety standards.

Slingsby supplies more than 35,000 workplace products across all industries, including an extensive range of PPE and the company says there are a number of unscrupulous operators in the UK selling a wide range of everyday products including high visibility clothing, gloves and goggles that fail to meet minimum safety requirements.

Lee Wright, Marketing Director at Slingsby, says: "Over the last couple of years, it's been well-publicised that cheap, substandard, and even counterfeit PPE is finding its way into the UK. A lot of the examples we have seen are badly made and fail to offer any real protection, as well as being non-compliant with safety standards. Some products even come with falsified certifications. The fact that to the untrained eye, many of these products still look the part often makes it difficult to spot they are fake. This means it is important to buy PPE through reputable suppliers and to ensure it is certified to the appropriate British or European standards. However, new legislation currently being considered would help to eradicate counterfeit PPE by making retailers and distributors accountable for ensuring the quality of the products they sell."

Until the changes are introduced, however, businesses and organisations have a responsibility to their employees, customers and the public to provide PPE that is safe and will do its job should the worst happen. This makes buying PPE a big responsibility because safety equipment that doesn't perform can ultimately cost lives.



# Events



A view from last year's Salone del Mobile

## Salone internazionale del Mobile

Salone internazionale del Mobile is an event of international repute that showcases the whole range of domestic furnishing solutions, standalone pieces, furniture coordinates, classical designs in home furnishings, modern and contemporary pieces of furniture and more. Held in association with the International Furnishing Accessories Exhibition, this event provides all round solutions to all residential and commercial furnishing needs. Visit this event to explore futuristic designs and the latest trends in the home furnishings industry. High-end furnishing houses, top level decorators, designers and such others come to this event to see and procure the latest products.

**When:** 14–19 April, 2015  
**Where:** Milan Fairgrounds, Rho, Milan, Italy  
**Web:** [www.salonemilano.it](http://www.salonemilano.it)

## Webster Power Products Limited's Power Tool, Woodworking & Garden Machinery Show 2015

Webster Power Products' event features a huge array of top quality brands, expert advice and demonstrations running over two days. Entry is free as well as parking and you also receive a complementary show guide. There will be competitions and prize draws running over the two days and early bird offers can be found via the website.

**When:** 24–25 April, 2015  
**Where:** Webster Power Products Ltd, 397 Coltness Rd, Wishaw, North Lanarkshire ML2 7EZ  
**Web:** [www.websterpowerproducts.co.uk](http://www.websterpowerproducts.co.uk)



'Oscar for Valsecchi 1918' desk



The Boat Building Academy in Lyme Regis

## Furniture-making course at the Boat Building Academy

Improve your woodworking skills using a bandsaw, router and biscuit jointer, by making one of three pieces – a chair, side table or wine table – which are yours to take home. Expert designer/maker Mark Ripley instructs on design principles and ergonomics before you make joints, assemble, sand and wax your piece. You should be practically minded with some woodworking experience in order to join this course. The fee – £625 – includes materials. To reserve your place, download the PDF form from the website and send it, with your payment, to the address on the form.

**When:** 27 April–1 May, 2015  
**Where:** Boat Building Academy, Monmouth Beach, Lyme Regis, Dorset DT7 3JN  
**Web:** [www.boatbuildingacademy.com](http://www.boatbuildingacademy.com)

## Weald of Kent Craft & Design Show

Returning to the grounds of Penshurst Place & Gardens, near Tonbridge in Kent, the Weald of Kent Craft & Design Show takes place from 2–4 May. With three days of activities for all the family to enjoy, the show also features the work of some of Britain's leading craftspeople to the backdrop of live music and the beautiful Kent countryside and with workshops, a family friendly atmosphere and delicious food. Over 200 British makers will assemble to display some of the best in craft, art and design. Visitors can buy from a broad selection of inspirational work of the highest quality with plenty to choose from for home or garden. Accompanying this, the Graduate Marquee offers visitors the



A falconry display at last year's event

opportunity to view an exhibition of cutting edge design and the chance to buy a 'one-off' for the home with truly stunning and innovative pieces at exclusive prices.

**When:** 2–4 May, 2015  
**Where:** Penshurst Place, Penshurst, Tonbridge, Kent TN11 8DG  
**Web:** [www.ichfevents.co.uk](http://www.ichfevents.co.uk)

## Woodworks@Daventry

Now in its sixth year, last year, this event attracted over 1,500 visitors and the organisers are expecting even more in 2015. Again, there will be refreshments within the show hall and some exciting demonstrators from the world of woodturning. The area's clubs will be showing the results of their endeavours and getting involved in the annual inter-club competitions. There will also be a raffle with some brilliant prizes.

**When:** 15–16 May, 2015  
**Where:** Daventry Leisure Centre, Lodge Road, Daventry, NN11 4FP  
**Web:** [www.tudor-rose-turners.co.uk](http://www.tudor-rose-turners.co.uk)

## Weird & Wonderful Wood

Weird & Wonderful Wood is an annual experience not to be missed. For those who love wood, those fascinated by the beauty of wood and beautiful wooden objects, it is a rare chance to see how objects are made and an opportunity to try making things.

Demonstrations will include furniture making, musical instrument making, displays by traditional fletchers and bowyers, chainsaw carving, wheel wright, hurdle making, woodturning, pole-lathe turning, sign writing, flute making as well as coracle making and traditional gypsy caravan displays. Visitors will be able to meet over a hundred artists and craftspeople, enjoy watching their practical skills and appreciate their work. There will also be a working mobile sawmill on site, so if you want to bring your own tree, it can be cut for you!

**When:** 16–17 May, 2015  
**Where:** Haughley Park, Wetherden, near Stowmarket, Suffolk, IP14 3JY  
**Web:** [www.weirdandwonderfulwood.co.uk](http://www.weirdandwonderfulwood.co.uk)



A chainsaw carving display at last year's Weird & Wonderful Wood

■ NATIONAL SCHOOL OF FURNITURE

## Bucks New University Furniture graduates head for new life in Ireland

A pair of Buckinghamshire New University furniture graduates have praised the quality of teaching they received as they prepare to set up their own workshop in County Wicklow, Ireland. Sam Hutchings, who studied Furniture: Conservation, Restoration & Decorative Arts and partner Nessa Doran O'Reilly, who graduated in MA Art and Design: Conservation of Furniture and Decorative Arts, said they were 'very excited' by the challenge.

The couple, who specialise in craftsmanship and upcycling, have been using facilities at Bucks New University in High Wycombe, to carry out commissions since graduating but are looking forward to the benefits of having their own workshop.

Sam, who is originally from Bristol, said: "We are extremely excited about the challenges ahead and already have a number of orders to work on. We are now shipping all of our equipment across to Ireland and can then get started. We both cannot speak highly enough of the expertise of the lecturers and technicians in the Department of Furniture at Bucks, who provide their time and knowledge generously. We have also both benefited from working closely with well-respected furniture professionals such as Paul Tear, course leader for the MA in the



PHOTOGRAPH COURTESY OF BUCKS NEW UNIVERSITY

Nessa Doran O'Reilly and Sam Hutchings are moving to County Wicklow, Ireland, to open a furniture workshop

Conservation of Furniture and Decorative Arts. Nessa and I have never given ourselves a chance to just focus on our furniture work so this is a great opportunity, and we also hope to teach short courses. We'll miss Bucks but are relishing the challenges ahead!"

Nessa and Sam have both been supported at Bucks under the National School of Furniture, a partnership between the University and City of Oxford College, which is supported

by a wide range of industry partners.

The pair received funding from the National Association of Decorative & Fine Arts Societies – NADFAS – and Nessa was also awarded a Roger Vere Furniture Scholarship. Its recent projects have included work with Ercol, Herman Miller, BDP, Gloster Furniture, Lago, John Lewis, Argos, Futurecity and Stowe House in Buckinghamshire.

For more information, see [bucks.ac.uk](http://bucks.ac.uk).

■ LEEDS COLLEGE

## UK's only specialist construction college is built on firm foundations

Leeds College of Building, which offers both furniture making apprenticeships as well as part-time furniture making courses, has successfully completed an extensive review by The Quality Assurance Agency for Higher Education – QAA – that continually highlights the College's success in preparing its students for employment.

The QAA is an independent body entrusted with monitoring standards and quality in higher education establishments throughout the UK. Its review team spent several weeks scrutinising all aspects of the College including academic standards and the quality of student learning opportunities. The review found that Leeds College of Building, which is the UK's only specialist further

education construction college, meets all UK expectations and highlights a wide range of good practice, including the College's comprehensive engagement with the construction industry and the effective embedding of employability skills in the curriculum. In addition, the review also singles out the comprehensive learning and support practices that result in high levels of student retention and achievement, including progression to employment and top-up degree programmes.

The success of the review means that Leeds College of Building can proudly display the QAA Quality Mark, indicating to UK and international students that the College meets national requirements for standards and quality.

For more information on courses, etc., see [www.lcb.ac.uk](http://www.lcb.ac.uk).



PHOTOGRAPH COURTESY OF LEEDS COLLEGE OF BUILDING

Leeds College of Building's North Street campus



## ■ CHIPPENDALE INTERNATIONAL SCHOOL OF FURNITURE

## History and pre-history in unique blanket box

Making great furniture is about balancing form and function to create something that looks good and works well. Sometimes, also, it's about giving it character and personality – or, even better, a tangible link to its owner.

That's what a Scottish woodworker has achieved in a commission to make a blanket box. Not content with fashioning a functional box from quartersawn oak (*Quercus spp.*) he wanted to infuse it with a personal and unique statement about its new owners.

The result from David McLean, of Furniture by McLean, is a motif fashioned in the shape of a belted Galloway cow and inlaid with goniatites, an early relative of the better-known ammonite, dating back some 400 million years.

David, a graduate of the renowned Chippendale International School of Furniture who continues to work from incubation space at the East Lothian school, wanted to incorporate something personal about the blanket box's new owners into his functional design.

The box was commissioned by a married couple, with the husband coming from Galloway in south-west Scotland, hence the cow, and his geologist wife – hence the pre-historic goniatite fossils from the high Atlas mountains in Morocco.

The motif itself was made from an inlaid piece of marble with a cherry (*Prunus spp.*)



David McLean's blanket box. INSET: The motif is fashioned in the shape of a belted Galloway cow and inlaid with goniatites

background. The distinctive white cow's belt was fashioned from sycamore (*Acer pseudoplatanus*). The veneer was glued over the marble then finished with a clear epoxy resin, carefully sanded to give it a glassy appearance.

Even the oak box has historical resonance, with the wood coming from Lennoxlove, only a mile from David's workshop. Lennoxlove is one of Scotland's most iconic stately homes and dates back to the early Middle Ages. It was probably visited by Mary, Queen of Scots and was the 17th century home of Frances Teresa Stuart,

the original model for Britannia.

"Hand-crafted furniture should be about creating something unique; in this case taking an everyday blanket box and transforming it into a piece infused with history and the lives of the people who commissioned it," said David McLean. "I would be delighted to work with other customers wanting unique designs, or incorporating their life stories into beautiful hand-crafted wood," he said. For more information, see [www.furniturebymclean.com](http://www.furniturebymclean.com) or [www.chippendaleschool.com](http://www.chippendaleschool.com).

## New Trailblazer 3 Apprenticeship programme

Last year, the Government announced changes to the present Apprenticeship programme that is delivered by colleges and training bodies. The new programme called Trailblazer is to be employer led and work has started on building the new way of introducing potential employees into the world of work and providing meaningful, structured training and qualification as they work.

Trailblazer 3 is aimed at the arboricultural, forestry and horticultural and landscape industries, and Bartlett Tree Expert, which has worked with colleges offering apprenticeships for many years, was asked to head up the project along with other industry partners.

A lead group representing the three

professions has now met and devised a structured programme that is allowing arboriculture, forestry and amenity horticulture to each build an industry focused apprenticeship that identifies the skills and knowledge required for an apprentice to become a successful worker in their industry.

The new programmes can start with school leavers who have to remain in education up to their 18th birthday and at this point will have to pick up numeracy and literacy, as well as work skills. Industry will have the opportunity to develop apprenticeships that will reach to skills and qualifications equivalent to degree level or higher in future years.

Each apprenticeship is expected to last at least one year, but approved programmes can be two or more years if the industry feels that the appropriate skills sets cannot be properly attained in a short time period.



Climber John Sargent works in a black walnut tree

In the coming months, the lead group and the professional working groups will build a robust and challenging draft apprenticeship programme, taking advice and the views of the industry as they progress. By the end of 2015, those involved want to present a proposal for Government and industry approval. See [www.bartlett.com](http://www.bartlett.com).

If you're a member of a collective and would like to raise your profile then submit a story to [teganf@thegmcgroup.com](mailto:teganf@thegmcgroup.com)

# Editor's round-up...

## Having trouble sourcing the right tool for the job? Derek Jones sets about identifying the essential tools and equipment on offer this month

*All sterling prices include VAT, correct at time of going to press*

The chair may be old and the tools might be new but the techniques are usually the same. This Art Deco chair is one of a set of six that will be appearing in a future issue as part of a suite of furniture in need of attention. We're not entirely certain who the maker is, but the London-based firm of Epstein is a good candidate. Considering their output consisted largely of made to order suites, the firm were prolific to say the least. Founded by Polish immigrants in the 1890s, the Art Deco style that was to be their staple has a definite European flavour to it and not too far removed from the simpler forms of Biedermeier.

The link to tools this month is at first a tenuous one, but if tools of the trade can be extended to include techniques, then I think we're safe. Just as there is no better way of fixing a corner block with hide glue than a hastily fashioned jig and a little pressure, there is no substitute for reliable quality. Look no further than Vesper tools from Australia, then, if you want the best in layout tools and CamVac for a range of rugged and reliable extractors made a little closer to home in Derbyshire. Everything else, it would appear, is somewhere in between.

### Vesper Tools' 100mm sliding bevel

This beautiful 100mm sliding bevel, available from Australian company Vesper Tools, is ideal for cabinetry work, dovetail marking and even useful on boats. It also fits in your pocket perfectly.

It features a precision machined solid brass body, the best locking mechanism available, plus an unbreakable hardened and ground stainless steel blade. These bevels are completely flush locking with no protruding parts or mechanism. You can expect perfect balance in the hand and they give the user the ability to lay them down flat on either face, which allows you to easily take a reading off a drawing, for example.

The bevels are comprised of a solid brass body, stainless steel screws and a hardened and precision ground stainless steel blade with a knurled brass locking knob. Available individually or in sets of two or three with a 100mm, 180mm or 255mm blade. Figured Tasmanian blackwood (*Acacia melanoxylon*) timber infill is supplied as standard.



PHOTOGRAPH BY GIANDECKA JONES



£117

### Axminster Hobby Series oscillating spindle sander

New from Axminster Tools & Machinery, this simple yet versatile oscillating bobbin sander is suitable for use at home but can also be used for all manner of finishing tasks in the workshop. Bobbin sanders are very useful when it comes to creating curves, shapes and also finishing small parts.

The bobbin oscillates by 24mm, spreading the wear over more of the sanding sleeve. The cast-iron table tilts up to 45° and has several nylon table inserts to give a close fit around the bobbin. The 370W induction



motor is quiet in use and slow running so as not to burn your work. The base is fabricated in sheet steel and has storage for spare bobbins and table inserts. Dust extraction is via a 50mm port on the rear and should be connected to a suitable vacuum extractor. This simple but sturdy machine would be a great asset for crafts and small projects. Supplied with 19mm, 38mm, 50mm and 76mm bobbins. Please note that this price is valid until 31 December, 2015.



### Clarke inverter generators

Machine Mart has two new inverter generators, which are ideal for providing a ready source of electrical power in the workshop. The 'Pure Sine Wave Technology' controlled electrical output ensures the delivery of clean and stable power – vital when running sensitive electrical and electronic equipment – computers and laptops, for example. To add to its overall ergonomics and appearance, it is housed in a stylish case, which also has the additional benefit of reducing noise levels to an absolute minimum.

The IG1000 model has a 1,000W output at 230V AC via a 13Amp three-pin socket and a four-stroke petrol engine with an 'Eco Throttle' engine system that automatically adjusts the engine speed to match the load



### Rockler workshop storage solutions

Rockler Woodworking and Hardware has expanded its line of workshop storage solutions to include three new additions. The 460mm shop stand apron is designed to keep a wide range of tools and accessories at hand for quick access and is constructed with steel grommets, which are spaced for easy attachment to the Rockler Steel Shop Stand. The joinery tool bag can be configured to keep drills, nailers, all manner of fasteners and even a charger in a single location. An assortment of pockets and narrow slots are there to accommodate a range of other hand tools. For extra protection and convenience the zipper pouches three-pack keeps small tools, fasteners and other components from disappearing in the dust, dirt and clutter that builds up in a shop setting. Each pouch is fitted with a metal grommet so it can be hung on pegs, hooks or nails at convenient locations throughout the workshop; a great way to make sure maintenance tools stay with their respective machines.



that is running for greater fuel efficiency. This model measures 460 x 250 x 420mm and weighs 15kg.

The IG2200 is a powerful, portable generator that features the same technology. With a maximum output of 2.2kW and a continuous output of 2.0kW, it is suitable for trade and leisure use and is perfect for use on site, on market stalls, for camping and caravanning trips, boating and much more.

This model measures 542 x 288 x 486mm and weighs 26.6kg.

### Record Power acquires CamVac extraction machines and accessories

Many woodworkers in the UK will be familiar with CamVac dust extraction machines. Until late 2014, the range of CamVac products were manufactured in Fakenham, Norfolk and sold throughout the UK for many years. In October 2014, the CamVac brand and

full range of machines and accessories was acquired by Record Power and the company are delighted to be continuing to manufacture in the UK at their Derbyshire-based engineering facilities.

In addition to providing woodworkers with high-quality extraction products, CamVac extractors are used in a wide range of industrial and professional environments – they are a particular favourite, for example, in the chimney sweeping industry. Record Power is committed to continuing to provide all existing CamVac users with the same high-quality products. All current CamVac machines and accessories will remain in production using the same tooling and manufacturing techniques that have historically made them so successful. In addition, Record Power have introduced their famous industry-leading five-year guarantee on all products manufactured from 22 October, 2014.





## ► Makita 18v DTS141 Oil Pulse impact driver

This new impact driver from Makita introduces a new form of hydraulic transmission that delivers impact power while substantially reducing the machine's operating vibration and noise levels. In the Oil Pulse version hydraulic oil is compressed by a revolutionary rotary drive train and the hydraulic pressure promotes the impact action. The new Makita DTS141 gives two impacts per rotation of the 6mm hex driving shank.

While maximum tightening torque is limited to 40Nm, the impact noise generated by this driver is significantly less than those in the current range. The maximum sound pressure level is 77dB(A) against the 96dB(A) of the traditional products. Similarly, the Oil Pulse system dramatically slashes the vibration rating down to 7.0m/s<sup>2</sup>.

The new Makita DTS141 brushless impact driver features the three-stage impact power and shaft speed selection delivering up to 2,700 impact blows per minute and running up to 3,200rpm in max power selection. This is suitable for M8 machine screws, M6 high tensile bolts and 125mm coarse thread screws. This body only model has the benefit



of Extreme Protection Technology – XPT – protecting against weather and dust ingress for long life and rugged reliability. The compact DTS141 impact

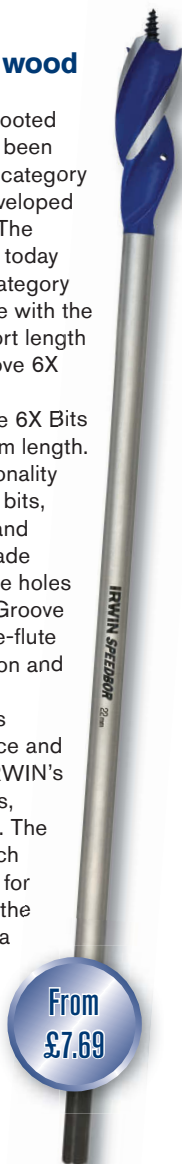
driver has a 136mm overall length, weighs just 1.5kg, has an LED job light and electric brake and comes in a neat, high impact MacPac case.

## IRWIN Blue Groove wood boring drill bit

With a long heritage firmly rooted in wood drilling, IRWIN has been consistently reinventing the category ever since Charles Irwin developed the first Auger Bit in 1885. The IRWIN brand as we know it today invented the wood boring category and is continuing to innovate with the introduction of long and short length bits to its current Blue Groove 6X wood boring range.

Up until now, Blue Groove 6X Bits were only available in 150mm length. To provide increased functionality beyond the standard length bits, IRWIN has added 100mm and 405mm versions. Unlike spade bits that have spurs to scribe holes when cutting, IRWIN Blue Groove 6X bits have a tapered three-flute design for faster chip ejection and less binding.

The new wood boring bits deliver the same performance and reliability associated with IRWIN's existing Blue Groove 6X bits, but with added functionality. The 405mm gives extended reach and the 100mm is excellent for tight work between joists – the 405mm has the addition of a flute hole for wire pulling, providing tradesmen with additional options to get their jobs done. Six times faster than any standard flat bits, Blue Groove 6X is leading the market on ease and efficiency.



## MASCOT Waterloo kneepads

Are you one of those people who occasionally works while kneeling? If so, additional protection for the knees is absolutely necessary. MASCOT has just launched new work trousers, which feature certified Waterloo kneepads made from Evazote® foam, which is ergonomically designed and can be used in all MASCOT trousers with knee pockets. They fill up well in width and have an elongated shape, which can be adjusted – prepared for the kneepad and can be easily cut off – if the kneepads are to be used in small kneepad pockets. MASCOT Waterloo is certified according to EN 14404, Type 2, Class 1, which is the

norm for knee protectors for working in a kneeling position.

In order to get the full benefit of your knee protector, it is important to have the correct trousers with the right fit. Kneepads should not bother you when you walk and stand. However, they should immediately be placed in the right position when you kneel down. This is one reason why it is vital that you choose trousers with the correct length and waist circumference. MASCOT give you the opportunity to choose between different trouser lengths and for each model and size the kneepad location is unique, which ensures that the knee protection area is always where the knee is.







## Wealden Tools' router window system

Wealden Tools has been working on a set of router cutters to assist in the production of timber windows using a router, rather than a spindle moulder. This unique set of cutters, designed by Wealden and Fry Design, is a relatively simple system using the minimum of machinery: a router, a saw and only a few other tools.

The cutters will produce professional outward-opening flush timber windows in a UK style. Similar tooling is also available to construct inward-opening windows in the Continental style. Using Wealden's suggested timber section sizes for the frame and sash will ensure that the cutters will produce the correct mouldings and, in addition, the PDF calculator supplied will work out a detailed cutting list.

A video showing the basic sequence of making a UK window can be found on YouTube: [www.youtube.com/watch?v=5nhU5H3ngwU](http://www.youtube.com/watch?v=5nhU5H3ngwU).

Wealden are keen to stress, however, that these tools are not intended for use by the novice, but by competent woodworkers with a knowledge of window-making.



## General Finishes' High Performance Top Coat



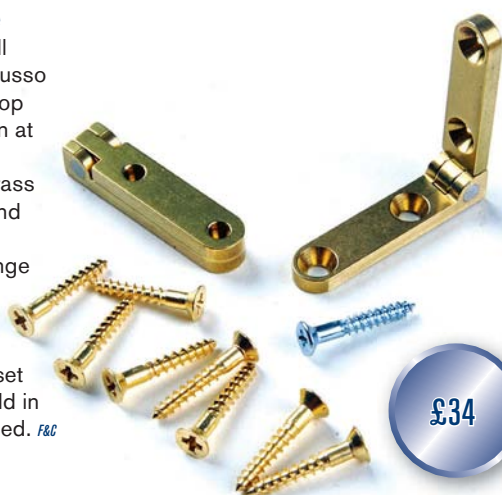
Available from General Finishes and winner of Fine Woodworking's Best Overall Choice Award, High Performance Top Coat is the hardest, most durable consumer polyurethane top coat on the market today. It contains all the consumer friendly characteristics of PolyAcrylic Blend. In addition, it contains a

UV stabiliser to protect it from breaking down in sunlight and to protect the underlying stains from fading, and with its pure polyurethane durability, it can even be used on floors. This is the most durable product but is not recommended for outdoor use. Available in the following sheens: flat, satin, semi-gloss and gloss.

## Brusso side rail hinge

This brass square knuckled full mortise side rail hinge from Brusso is engineered with a built-in stop that allows a lid to remain open at a 95° angle. These hinges are milled from 6mm-thick solid brass stock to precise dimensions and are designed to last a lifetime. They feature stainless steel hinge pins and the standard Brusso burnished finish.

The leaf measures 12mm wide x 50mm long and the inset is 45mm long. The hinge is sold in pairs with brass screws included. *F&C*



From  
£20.45  
for 473ml

£34

## Contacts

### Axminster Hobby Series oscillating spindle sander

Contact: Axminster Tools & Machinery  
Tel: 03332 406 406  
Web: [www.axminster.co.uk](http://www.axminster.co.uk)

### Brusso side rail hinge

Contact: Classic Hand Tools  
Tel: 01473 784 983  
Web: [www.classichandtools.com](http://www.classichandtools.com)

### Clarke inverter generators

Contact: Machine Mart  
Tel: 01159 565 555  
Web: [www.machinemart.co.uk](http://www.machinemart.co.uk)

### General Finishes' High Performance Top Coat

Contact: General Finishes  
Tel: 01316 615 553  
Web: [www.generalfinishes.co.uk](http://www.generalfinishes.co.uk)

### IRWIN Blue Groove wood boring drill bit

Contact: IRWIN Tools  
Tel: 01543 447 001  
Web: [www.irwin.co.uk](http://www.irwin.co.uk)

### Makita 18v DTS141 Oil Pulse impact driver

Contact: Makita  
Tel: 01908 211 678  
Web: [www.makita.co.uk](http://www.makita.co.uk)

### MASCOT Waterloo kneepads

Contact: MASCOT Workwear  
Tel: +45 8724 4820  
Web: [www.mascot.dk](http://www.mascot.dk)

### Record Power CamVac extraction machines and accessories

Contact: Record Power  
Tel: 01246 571 020  
Web: [www.recordpower.co.uk](http://www.recordpower.co.uk)

### Rockler workshop storage solutions

Contact: Rockler Woodworking and Hardware  
Tel: (001) 800 279 4441  
Web: [www.rockler.com](http://www.rockler.com)

### Vesper Tools' 100mm sliding bevel

Contact: Vesper Tools  
Tel: +61 (0)4 000 626 56  
Web: [www.vespertools.com.au](http://www.vespertools.com.au)

### Wealden Tools' router window system

Contact: Wealden Tool Company  
Tel: 0800 328 4183  
Web: [www.wealdentool.com](http://www.wealdentool.com)

# The Skelton dovetail saw

**Chris Tribe is full of praise for this handmade dovetail saw from Skelton Saws**

This new saw from Shane Skelton has caused a bit of a stir among tool aficionados. It's the first handmade bespoke saw to be produced in England for some years and Shane is single-handedly trying to revive the handmade saw tradition in this country. I was able to give it a brief test when he brought it to my stand at the North of England Woodworking & Power Tool Show. The handle was a little small for my oversize hands so he offered to carry out the adjustments as if it had been commissioned. That's what bespoke is all about!

## Quality materials

The blade is high carbon spring steel tapered along its length from 43mm at the heel to 37mm at the toe and 0.018in thick. It's heat treated to achieve 50-52rc and the teeth are individually punched using a fly press. The blade is fitted to a back milled from solid brass flat bar and the hand-shaped rosewood (*Dalbergia retusa*) handle is fitted to the blade with hand-turned split nut saw bolts. No premium saw would be complete without a medallion and the Skelton is hand stamped with the family crest logo.

## Fits like a glove

Based on a Georgian design, each saw is numbered and comes with a letter detailing its manufacture – this one is number 17 and is without a doubt a thing of beauty. Shane's skill and experience as a gunsmith is clearly evident in the attention to detail around the junction between the back and the handle, which following the adjustments, now fits my hand like a glove.

## In use

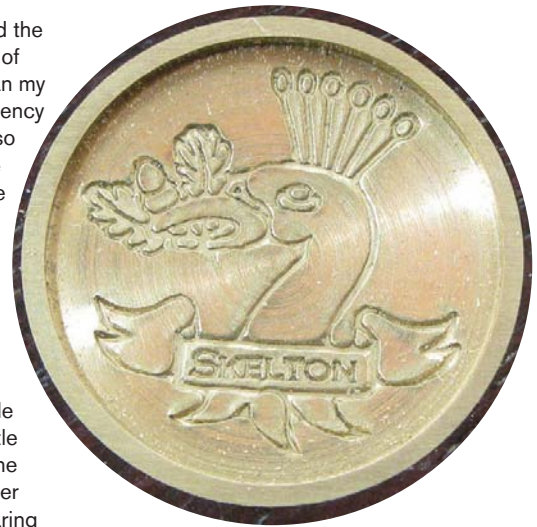
During the first couple of strokes I found the saw tended to jump out of the cut. I am used to dovetail saws with finer teeth, 20tpi compared to 15tpi on the Skelton, but adjusting my technique to compensate has made a difference. Some would say 15tpi is quite



PHOTOGRAPHS BY CHRIS TRIBE

coarse for a dovetail saw; however, I found the sharpness and the 0.076mm set per side of the Skelton gave a much easier action than my 20tpi Roberts & Lee. There can be a tendency to struggle on with a blunt saw when it's so difficult to sharpen the 20tpi, whereas the 15tpi encourages early sharpening. By the way, Shane offers a sharpening service for his saws.

I tend to cut shy of the baseline on the reverse face to avoid over shooting. Using this saw with the back running in horizontal strokes, the tapered blade gives a cut just short of the baseline on that face. A slight adjustment and a couple of additional strokes means that with a little practice, you can get closer to the baseline without having to stop and look at the other side. Accuracy here means less time clearing the waste later. The sawn faces looked good with very few saw marks so there was no need to clean up with a chisel.



The Skelton medallion features the family crest

## The numbers:

**Blade length:** 254mm

**Blade depth:** 43mm tapering to 37mm

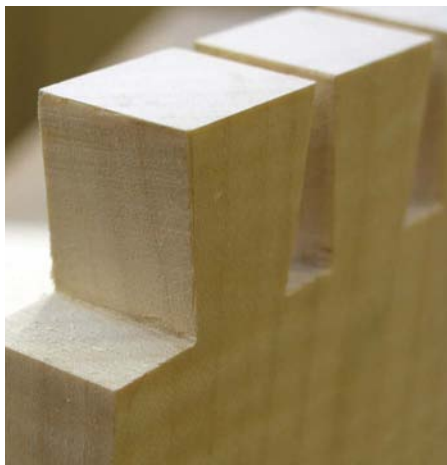
**Handle:** Rosewood, finished with microcrystalline wax, fitted with two split nut bolts and 50° hang

**Back:** Milled from solid brass and stamped 'Skelton Saws'

**Teeth:** 15tpi sharpened rip style, 8° rake angle and 0.076mm set

**Price:** £245

**From:** [www.skeltonsaws.co.uk](http://www.skeltonsaws.co.uk)



Dovetails require little touching up

## F&C verdict

*I have never really been a great believer in spending a fortune on hand tools. I think the most I have spent on a tool is £140. Do expensive tools make you a better maker? I don't think so. Spending on tools will not compensate for bad technique; however, using a tool that has been made with care and thought can give greater enjoyment in the work and reward good technique. This saw does everything required of it technically, but more than that, it comes easily to the hand and is responsive, making it a pleasure to use. If this review seems a little gushing, it's difficult not to be when presented with a tool this good F&C*



# ROUTING & WOODWORKING CATALOGUE 2015



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# In the workshop with Gareth Batowski



**We find out about the largely self-taught furniture maker Gareth Batowski**

**G**areth Batowski grew up on the very edge of the Peak District halfway up a hill, with the small riverside town at its foot. Typical of this idyllic landscape at the top of the hill were fields surrounded by trees that became his childhood playground.

## **Starting woodworking**

Gareth feels that he owes a lot to his father for his venture into woodworking. During his childhood, Gareth's father would always find the time to entertain his son –

and himself – through building all manner of things, from gliders, igloos, boats and castles to doorbells! With his father, anything could become something: a branch once became a crocodile for the pair. Gareth tells us: "Everything from then on led me to become a furniture designer and maker."

At university, Gareth earned a degree in photography, before working for a year with the Forestry Commission. The year was taken up installing just one single fence, albeit a very long one. Gareth would move slowly down the path, installing post, then

panel, then post, then panel – you get the idea. Far from being dull, it gave him time to study his surroundings and once again be part of a landscape that he was very familiar with.

A good range of practical skills meant he was able to accept work on a local farm fixing the odd stable door and ultimately taking on more complex joinery projects. When the work dried up and not being one for procrastination, he made ends meet first as an odd-job man and then as a builder's labourer.



### Lucky break

The move to furniture maker came about when Gareth's employer was let down by contractors and he was asked to finish the interior work of the house, including a small dining table. Though confident of his ability, he admits to still having to look up 'how to make a dining table' before cutting any timber. He tells us: "I didn't have a clue! It was joyous!" The work took place on site in the customer's basement under fiercely bright, halogen lights. Looking back it wasn't ideal but it was an invaluable lesson on how to work efficiently.

### Journeyman tradition

The new furniture maker then moved into a single garage unit and spent the next year working on commissions and repair work, eventually expanding into the three units. "I was starting to make my own furniture by this time, albeit a little naive and crude, but it was honest. I would read about dovetails, then go and try them out on a solid carcass," he continues.

Anyone will tell you that when you first start out on your own you don't always get to make what you want. There was the occasional nod to quality craftsmanship but also a lot of furniture that was expected to be made for less than it would cost in IKEA.

### Forums

Having read, watched and surfed the internet for furniture-making tips, advice and ideas, Gareth soon came across the FDMA and the NCFM forums. He felt they were

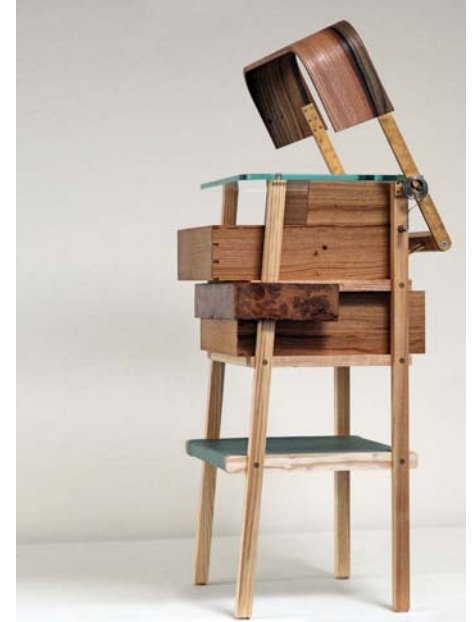
good places to share and exchange ideas. He found people on them, whose books he was learning from and who had been to prestigious furniture schools. With an enthusiastic plea, but a limited body of work, Gareth was accepted onto the forum, but not without some debate from members. "I have since read streams of messages for and against my acceptance. Not having an established body of work and being a little green provoked those against," he tells us. Those who were happy for him being on the forum liked his enthusiasm, readiness to learn and eagerness. It was from the forum that Gareth received an email from Garry Olson, a renowned furniture maker, who represented the left-hand side of the Pennines for the NCFM. Garry invited him to his workshop for a chat over lunch where he discovered what a real workshop was: "It was like it was in the photographs," he explains. "There was timber, in stick as well as drying outside. Machines, great hunks of cast and green painted metal and stuff you couldn't move. He also had three dust extractors, a kitchenette, radiators and a polished concrete floor. I could only dream of working in a place like that."

A year later, a vacancy became available to rent a bench in Garry's workshop and Gareth snapped it up. His rent and learning curve quickly pointed skyward.

### Favourite pieces

When looking to a personal favourite piece of his own furniture, Gareth tells us that it has to be his 'End-Grain' chair. He explains: "I enjoyed the exploration process of working

with end grain to find a way of using it. I often use it in boxes and I love its narrative pattern, but I took on the ambitious task of putting it into a chair." Setting himself a brief of 'reveal and intrigue' he is currently exploring the pared down nature of structures avoiding unnecessary embellishment and where nothing is hidden."



'RAI 2014', ash frame, oak drawers, wych elm and burr oak drawer fronts, low ion glass top and drawer bases, slung leather shelf, brass, clock springs and rotational dampers, 480 x 340 x 750mm. This table has a flip top lid assisted by clock springs and rotational dampers, which opens the drawer, then closes it

## Maker's maker – Garry Olson

*Without doubt, the maker who has had the biggest influence on the way I work is Garry Olson, whom I rent a bench from in his workshop. Leading by example, Garry has taught me a lot about accuracy and detail and I am in utter awe of his drawer-making capabilities. The perfection of a piston-fitted drawer in a solid carcass is something to behold. It is a joy. If you can cut dovetails, so what? There is much more pleasure to be found in a well-fitted drawer than its joinery.*

*When I first moved into Garry's workshop, after idealising over dozens of whimsical wood books, I had Krenovian aspirations of hand planes and calluses, but he taught me about precision in craft, while using any machine or tool – splitting millimetres into four and truing up components with hand tools to perfection.*

*I really admire the way, when considering a piece of furniture, Garry's focus is on proportion and timber quality. Selecting timber is a huge part of the design; it can be a personal and subjective part, bringing personality into the final outcome.*



'Chess Table', combining the contrasting colours of sycamore and laburnum to create a bold sculptural look



Detail of one of Garry's desk drawers



Garry in his workshop

## DESIGN & INSPIRATION

In the workshop with Gareth Batowski



'The brother 2014', ash frame, oak drawers, figured black poplar drawer fronts, pegged Cumbrian green slate top, glass drawer bases, slung leather shelf and brass detailing, 480 x 340 x 720mm. This single drawer table utilises lesser known black poplar for its striking figure



'Pedastall 2012', English oak, ebonised oak, MDF, paint and Deodar

### Design ethos

When thinking about his work ethos and considerations in making a piece, Gareth believes that sustainability should be a given and provenance of timber should be inherent: "Timber, pattern, grain, colour, texture – this is my chosen palette and if a tree has stayed standing on a busy avenue for 50 years or more, it'll have a lot more story to tell than an American tree shrouded behind a plastic guard, keeping it straight," he comments.

Gareth finds harmony in the clean lines of modernism and is 'repulsed' by the 'pomposity' of Rococo furniture. Taking such a hard line on what is generally considered to be just a stepping stone in our development as artists and craftsmen isn't likely to curry favour with the establishment, but then he's not a big fan of Arts & Crafts furniture either: "Although they are to be respected as makers," he explains.

### The future

Gareth's next step in his furniture-making career is to have his own workshop again, after nearly three years of renting space from Garry Olson. "I'm ready for the next exciting level." Of that we are in no doubt. *F&C*

### Contact details

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Web: [www.garethbatowski.co.uk](http://www.garethbatowski.co.uk)  
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'End-Grain 2012', English urban felled timber, Monterey cypress, resin, foam, and leather, 600 x 550 x 840mm



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Platen tilting	0 - 90 degrees

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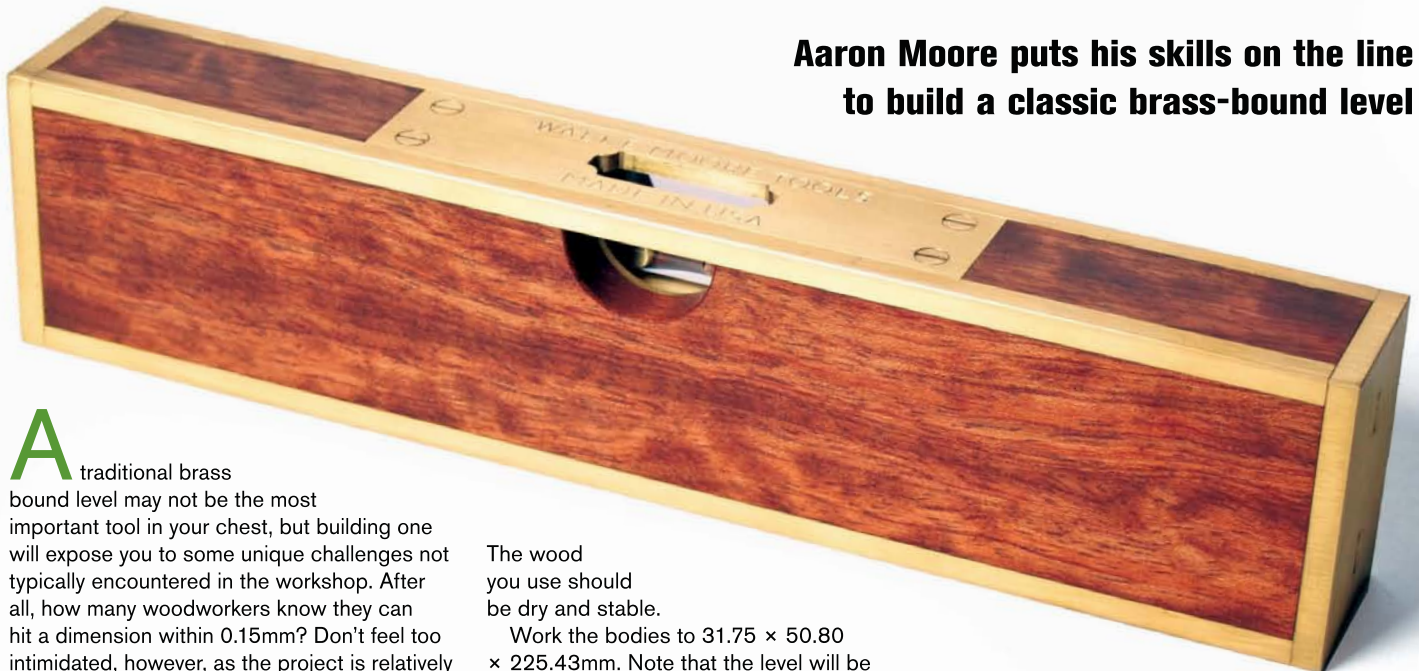
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# Precision instrument

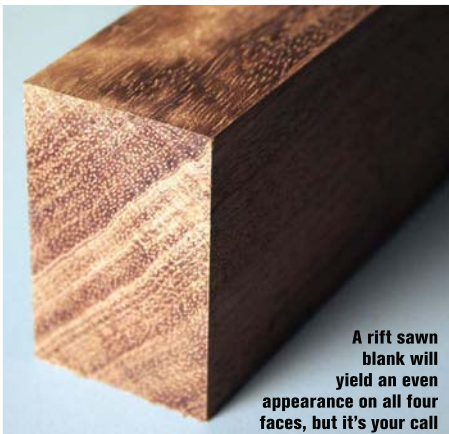
**Aaron Moore puts his skills on the line to build a classic brass-bound level**



**A** traditional brass bound level may not be the most important tool in your chest, but building one will expose you to some unique challenges not typically encountered in the workshop. After all, how many woodworkers know they can hit a dimension within 0.15mm? Don't feel too intimidated, however, as the project is relatively simple and the end product is stunning. So go find that precious piece of exotic wood you don't know what to do with and pull out your dial callipers – that's right, callipers – because it's time to have some fun... the nerdy woodworking kind of fun that is.

## Starting notes

This project is based around a kit that is available to purchase from Walke Moore Tools in the USA and was designed with standard imperial dimensions. The measurements have been converted to metric for a – predominately – European audience and as such may appear a little fussy. In some instances, they may not be a direct equivalent. Therefore, to avoid mistakes, I recommend you use our dimensions as a guide and check each component with your callipers. A good craft or hobby store will stock a range of brass if you prefer to build your level from scratch. You may find it beneficial to make two level bodies at once: the first made from scrap wood that will be used for test cuts; the second will be used as the finished product.



A rift sawn blank will yield an even appearance on all four faces, but it's your call

The wood you use should be dry and stable.

Work the bodies to 31.75 × 50.80 × 225.43mm. Note that the level will be 230mm long when the end caps are installed. Try to hit these dimensions within 0.15mm and at perfect right angles. This may prove difficult, especially if you're not a regular user of hand planes, but it will pay off in the end. Just be patient and if you're struggling, it's better to be oversized and square rather than undersized and not square.

## The top plate recess

With the blanks dimensioned, start by cutting the recess in the top face for the cover plate. Cut 3.18mm deep and 101.60mm long, centred on the body. You might want to carry out this operation on a router table with an accurate lift mechanism. Any minor blow-out will be removed in the next step. Use the cover plate itself to check the fit. It should drop in freely and not be a press fit.

## The edgebanding rabbets

Cutting the rabbets is simple and like before can be completed on a router table. The cuts should be about 4.76mm square, but adjust the cuts until the exposed top and bottom faces measure 22.23mm wide and the exposed side faces measure 41.28mm. If your blank was oversized, this will require rabbets that are slightly larger than 4.76mm square, but that will be resolved in the final stages. What really counts here is getting the faces between the rabbets as close to 22.23mm and 41.28mm as possible.

## The end cap rabbets

The rabbet that wraps around each end of the level allows the brass caps to firmly maintain their position laterally, whereas the two screws simply prevent them from falling off. This is an important feature because the end caps also get pinned to the edgebanding and if the caps shift over time – which can happen with



Hitting the final depth with a router plane



Hog out the waste and chisel to your knife line

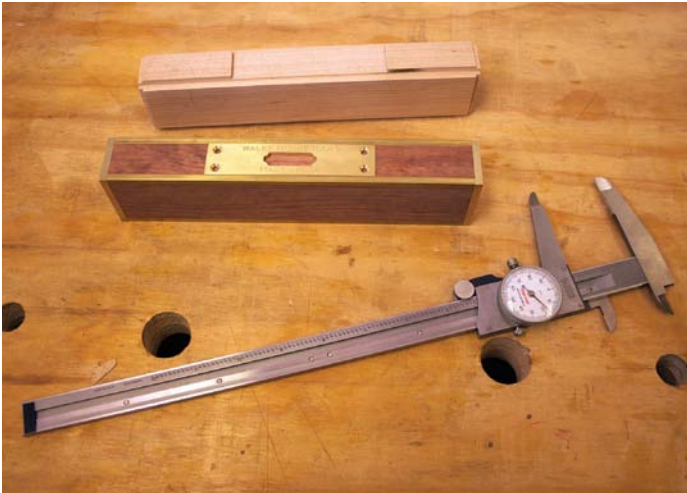
a flat plate and screws – the edgebanding will shift as well. Cut the rabbets 3.18mm down the length of the body, leaving 219.08mm of wood exposed on each face. Cut the depth of the rabbets such that the remaining end grain measures 26.99mm wide × 46.04mm tall. Check the fit with the end cap itself. You can use a chisel to pair away a little material as needed. It should slide on with hand pressure only – brass is soft; don't hit it with a hammer or rubber mallet to get it seated – and there should be a tight fit between the base of the cap and the rabbet's shoulder. If gaps exist, then the rabbet was cut a little long. This is easy to fix, however, by trimming the protruding end grain, preferably with a shooting board to keep everything square.





### A quick check

Now is a good time to check the fit before moving on. Place the four edgebanding strips in their rabbets and hold them in place with rubber bands or painter's tape. Insert the top plate and slide on the end caps. The outer faces will not be perfectly flush from the brass to the wood, but that's to be expected at this point. For now, inspect where the edgebanding meets the end caps, where the top plate sits between the edgebanding and the shoulders of all the rabbets – are there any gaps that need correcting? When you're satisfied with the fit you may move on, otherwise take the time to fix it now. If you find the top plate can't fit between the edgebanding, then there's an easy fix: simply rub the edges against some abrasive paper until it will just slide into place.



Testing the fit by placing the four edgebanding strips in their rabbets

### The vial mortise

The mortise to house the adjustable vial pieces measures 76.2mm long by 12.7mm wide. It is centred on the body and has round ends rather than square, which enables a 13mm drill or router bit to be used. The mortise is 31.75mm deep from the absolute top surface of the level, or 28.58mm deep from the base of the top plate recess you made in step 1.



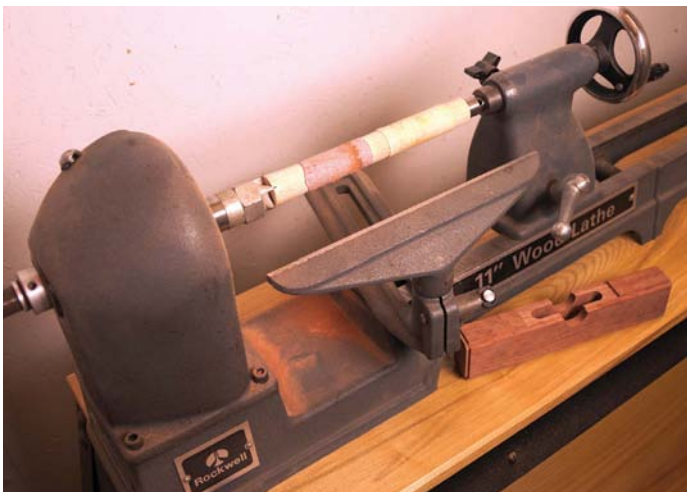
The mortise to house the adjustable vial pieces measures 76.2mm long by 12.7mm wide

### The vial viewing window

Cutting a semi-circle through the body creates a window to the vial when viewed from the side. The window is a 25.40mm diameter circle centred 4.76mm below the absolute top surface. This can be drilled with a Forstner bit, but a piece of scrap wood should be placed in and fill the vial mortise to prevent blow-out. The approach I prefer is to lay the circle out by hand using a circle template, rough out the shape with a fret or coping saw and finally use a spindle sander to finish things off. A chamfer added around the edge of the semi-circle is a nice detail to add by hand using a selection of rasps and files.



Roughing out the window with a fretsaw



No spindle sander? A lathe can work too



A simple chamfer adds a nice touch



## Drilling the pilot holes

Small brass screws are soft and can easily have their heads torn off. Before installing the screws, pre-drill some scrap wood of the same material you're using for your level and practise your technique. Install the provided steel screws first to tap the hole and add wax to both the steel and brass screws. When installing the brass screws there should be very little resistance until the screw head reaches the brass. It takes very little pressure to hold the plates in place, so gently drive the screw until you feel the screw engage the brass, then stop. You're done. Do not use a powered drill and again, practise this on scrap wood until you feel confident. You don't want to bury a broken screw in your level at this point. The kit includes additional brass screws should you destroy or lose some while practising.

Place the fixed vial plate on the bottom of the mortise and mark the four hole locations. The two countersunk holes are used for mounting the plate; the outer holes simply provide clearance for the No.2-56 machine screws that are used to adjust the vial. Drill these outer clearance holes with a 4mm bit to a depth of 10mm.

With the inner holes laid out and the outer holes drilled, place the top plate on the body and mark the four corner holes. These will receive No.4 screws, as do the two inner holes on the fixed vial plate. A 2mm bit should work in most woods, but you may find a slightly different size is preferable, depending on the density of the wood you're using. Test out different bit sizes on scrap wood until you're satisfied. The end caps are held in place with No.8 screws. Lay out their locations and drill the holes with a 2.38mm bit.

If you want to clock your screws so the slots all align, install each screw noting how far off it is, then chuck it into a drill press and lightly file the underside of the head. After some trial and error, this will go fairly quickly, but make sure you don't confuse which screw matches which hole once they have been adjusted.



Drilling the pilot holes



One skewed screw



Removing material from the underside of the screw head allows further rotation before it bottoms out on the end cap



The screw slots nicely lined up

## Installing the edgebanding

The edgebanding is held in place with a series of pins. Screw the end caps onto the body and place the edgebanding into their rabbets. These can be held temporarily in place with a bit of packaging tape around the body. Once the banding is in place, drill 2.38mm holes as shown opposite. It must be a 2.38mm twist bit or the pin will not fit properly. Centre the hole on the banding and drill 11-12mm deep. Do not drill too deep or the pin will be buried instead of sitting slightly proud. Tap the pins home. Drill through the corners of the end caps as shown, which should centre the pin in the end of the edgebanding. File the pin tops down until they are 1.5mm above the surface, then peen the ends. This basically involves light taps with a ball-peen hammer to deform and expand the end of the pin, which in turn fills the hole and prevents the pin from backing out.



When drilling through the corners, make sure the bit will pass through the middle of the edgebanding. Careless alignment can send the bit through the side of the edgebanding and pull the bit sideways. Choking up on the bit will also help prevent walking or deflecting



## Finish the body

With the banding and end caps installed the outer faces can now be addressed. Lap three faces flush with abrasive on a lapping surface, ignoring the top for now. Start around 80 grit to knock down the pins and get the brass even with the wood. Note that brass contains lead so gloves and a breathing mask should be worn during this process. Work up to 320-400 grit. Check to make sure the body is square as you work. If you have worked to close tolerances up to this point, lapping should be brief. For the top surface, if the top plate is below the wood surface, then simply lap until

everything is flush. If the plate is above the wood slightly, install it upside-down and without screws. Lap this surface until it's basically flat, then flip the plate, install the screws and perform a final lapping. This will minimise the material removal from the top surface of the top plate which avoids wearing through the WMT stamp. For the end caps, the screws should be slightly proud of the end cap surface. File these down and/or shoot the ends flush with an abrasive shooting block. For a finish, an oil finish works well as it will soak into the wood and won't build up over the brass, but it's your choice.



Lap the faces of the level flush using abrasive paper laid on a flat surface



Abrasive shooting block: a hunk of wood milled at right angles with abrasive glued to the top portion. The bottom is left as bare wood and runs against the shooting board

## Installing the vial

The vial can be installed in its brass housing using plaster of paris, but a wooden infill looks far superior. Do not use epoxy as this makes replacing the vial extremely difficult and can fog the glass. Work a strip of wood to just fit the opening of the vial mount. Do not make it an excessively tight press fit or the brass walls will deform. Make the strip about 6mm thick and about 50mm long. The vial will be captured in these strips, but the vial is curved

slightly and non-circular in cross section. Drill two holes slightly smaller than the vial diameter, one at each end of the strip. Each hole will need to be opened up with a file to fit the vial. Cut the strip in two pieces, fit them over the ends of the vial, then lap the bottom and sides flat as a complete assembly. Install the vial and wood assembly into the brass housing. If it's a nice fit, then you can stop there or add a little glue to the wood to help it adhere to the brass.



Drill undersized holes, then open them up with a file to match the shape of the vial

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## PROJECTS & TECHNIQUES

### Homemade spirit level



When the infill strips fit over the vial, lightly sand the base and sides as an assembly to bring everything flush. If the fit is too tight in the brass housing, continue to gently sand the sides until the desired fit is achieved



Once installed, cut off the protruding wooden strips, then lap the top of the wooden infill flush with the brass

### Final assembly

The last step is to drop the vial assembly into the level body using the springs and machine screws. It helps to position the springs in the body first, aligning them over the holes with an awl or small piece of scrap wood, then lower the brass assembly with screws onto the springs and get the screws started. To adjust the vial, turn the screws until the vial is positioned vertically where you want it in relation to the viewing window, then adjust for tilt. To calibrate the level, you can check it against another level or with the 180° trick. This trick simply means you put your level on a surface, dial it in and rotate it 180°. If the vial reads the same, you're done. If the bubble moved from centre to, let's say, 2mm right the right, adjust the vial again by splitting the difference, in this case 1mm back towards centre. Now rotate 180° again. If the bubble reading is repeatable even if it's not on centre, then it is adjusted correctly and your surface is simply not level. Once you find a level surface, you should be able to place your level in any orientation and get the same level reading. Install the top plate with four screws – it is important to not overtighten – and your level is ready to go to work – or to show off to your friends.



Install the baseplate...



Install the vial assembly...



Install the top plate

### Questions or issues?

*If you have any questions or issues during the build, then don't hesitate to contact me at [aaron.moore@walkemooretools.com](mailto:aaron.moore@walkemooretools.com). We're happy to help and when you're done, send us photos of your completed level. We'd love to see what our customers come up with F&C*





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# JAPANESE JOINTS

## – part 4

John Bullar continues with his series and in this issue, looks at making Japanese splicing joints

So far in this series we have looked at making traditional Japanese right-angled joints using both Eastern and Western designs of hand tools. This article will concentrate on making 'Tsugite', which are Japanese splicing joints for connecting timbers end-to-end.

Joints of this type were originally developed for constructions, such as buildings and temples, where a single piece of timber may not be long enough for the span. In adapting the designs for contemporary furniture joints, we might use them to reduce the environmental impact and wastage in furniture-making by enabling short pieces of wood, particularly exotic species, to be incorporated. Several of the joints are also usable for knockdown constructions or on-site assembly of larger pieces of furniture. Additionally they might be used for aesthetic reasons to display different wood types and joinery.

In some cases, I have tried to simplify the cutting of these joints so they can be made more efficiently. It is also worth thinking about using power tools, such as the bandsaw, router and mortising machine for any batch work.

As a way of approaching this subject, I have grouped the splicing joints in this article into two main categories: straight splices and angled splices.

### **Straight splices**

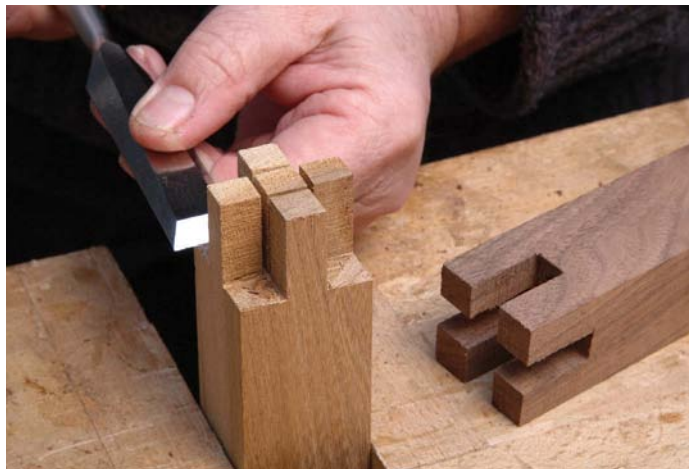
Most conventional woodwork uses orthogonal geometry – in other words, it is based on cutting straight lines and right angles. This reduces the complexity of marking and cutting and avoids the need to match corresponding angles, giving the joints a better chance of fitting first time. To illustrate straight splices, I have described here the crossed joint and pole joint that only use right angles and also shown a straight-cut rebated scarf joint at the end of this article.



## Crossed joint

The 'Juji Mechirre' or crossed mortise and tenon is a tidy joint with good strength provided by the four square sections around each mating half. Although simple enough in principle, cutting the crossed tenon with a chisel can be rather a drawn out procedure.

The sockets on the four corners need to be chiselled away if you



Paring the outer sockets of this Juji Mechirre or crossed mortise and tenon joint – you can see here that the simplified sawing method divides the cross up into five separated tenons



Once assembled the Juji Mechirre is a handsome joint for square sectioned wood and it is a very rigid joint too, incorporating large gluing areas between long grain

## Pole joint

The 'Saotsugi' or pole joint consists of a long tenon housed in a deep open-sided mortise. Because the mortise is cut in long grain it could easily splay out and break when the tenon is fitted or subject to any strain. The pole joint has a collar either side of the tenon to restrain the mortise sides and stop this from happening.

Traditional Saotsugi joints are made in half-blind versions using a channel in the

wood rather than an open-sided mortise. To simplify this pole-tenon joint I have cut both mortise and tenon to the full depth of the wood so they will be visible both sides of the completed joint.

Start by sawing the tenon to one-third of the timber width, then use this as a template to mark out the mortise width and length. Mark the internal shoulders around the socket against the collars

around the tenon. The pair of triangular grooves to take each locking peg are cut with a dovetail saw on the tenon and a coping saw inside the mortise.

The Saotsugi is assembled and then both pegs are locked tightly in place to eliminate any racking in either direction. Being made from hardwood fitted in a softwood joint the pegs can be cut very slightly oversize for a tight fit.



This simplified Saotsugi or pole-tenon joint is cut to the full depth of the wood so it will be visible both sides of the completed joint



Having sawn out the socket to the depth of the tenon and removed the waste with a coping saw, the internal shoulders are knife-marked to width



Triangular grooves are cut with a coping saw to accept the locking pegs



The first of the locking pegs is ready to be trial fitted to the joint



The Saotsugi or pole tenon is finally assembled with both pegs locked tightly in place, which eliminates any racking in either direction



## Oblique splices

Many of the Japanese joints used to splice wood end to end are oblique or, in other words, cut at a slanting angle. There is a good reason for this: the taper involved in an angled cut greatly reduces the strain at the point where the joint starts compared to a straight joint and makes it less likely to snap there. Oblique joints are therefore preferred where strength is important.

## Bird's mouth joint

The 'Ken-isuka-tsugi' or bird's mouth joint is the simplest oblique socket joint used for splicing. By elongating the joint it can be made stronger both mechanically and by enlarging the long-grain gluing area. Very simple in concept and strong when glued up, the Ken-isuka-tsugi must be sawn with care to produce matching angles.



The Ken-isuka-tsugi or bird's mouth joint is simple in concept and strong when glued up but must be sawn with care to produce matching angles

## Twin-angled scarf joint

Although simple and elegant in concept, the 'Isuka tsugi' or halved-scarf joint can be a bit tricky to get your head round before you make one and so it needs very careful marking out. Cutting the joint, however, is quick and simple and the finished results are strong and intriguing to look at.

Start by marking a pencil line against a bevel gauge for the oblique cut and a halfway line around the edge of the Isuka tsugi joint to show the wedge that will be removed. Repeat the same marking process for the hidden face and hidden side of the joint.

The Isuka tsugi joint is best clamped in the vice at an angle ready for sawing the edges so the cut can be made with the teeth moving horizontally – that way there is less risk of the saw blade running too far. Run the saw down the waste side of the line each time. On the second cut, any web of wood left in the middle between the two kerfs will be of negligible thickness and probably crumble to dust.

The two halves of the Isuka tsugi joint lock together very positively and with glue between the internal faces make a strong and interesting looking joint.



Marking the halfway line around the edge of the Isuka tsugi joint to show the wedge that will be removed. The same marking process is applied to the hidden side of the joint



The Isuka tsugi joint is clamped in the vice at an angle for sawing the edges so the cut can be made with the saw horizontal



The joint is clamped horizontally in the vice while the diagonal cuts are made in each face of the Isuka tsugi joint



Start the Isuka tsugi by marking a pencil line against a bevel gauge for the oblique cut



The two halves of the Isuka tsugi joint are sawn and ready to be fitted together



### Rebated scarf joint

The 'Okkake-daisen-tsugi' is a scarf joint with an oblique double socket in the middle section, which is held in place by a rebate and straight tongue at each end.

Both sides of the joint should ideally be identical, but in practice, it is far more important that the corresponding sections

match so they will meet without gaps.

Pegs driven into sockets in the Okkake-daisen-tsugi joint stop it from sliding apart sideways. These can be fitted right through with a slight taper, so the joint can potentially be dismantled or, alternatively, the pegs can be glued into stopped holes for permanence.



The Okkake-daisen-tsugi is a rebated scarf joint, which can be cut mostly with a tenon saw and coping saw



The oblique socket in the Okkake-daisen-tsugi is levelled by paring with a chisel to remove the coping saw marks



Both sides of the Okkake-daisen-tsugi are slid together to close the joint



Both sides of the Okkake-daisen-tsugi joint should ideally be identical, but in practice, it is more important that the corresponding sections match so they will meet without gaps



Finally, pegs are driven into sockets in the Okkake-daisen-tsugi joint to stop it sliding apart sideways



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## End-mortised scarf

Similar in appearance to the previous joint, the 'Kanawa-tsugi' is also an obliquely spliced scarf joint. Instead of using a straight tongue and rebate it has mortised rebates at each end to prevent sideways movement. This means the joint cannot be slid into place sideways and instead uses a blank opening in the middle to allow end movement for assembly. Final fitting of the Kanawa-tsugi joint is by interlocking the two halves and sliding them together. The middle opening is then filled with a rectangular peg, which is cut to make a tight fit. This peg can be glued in place to prevent it sliding with seasonal movement, although the joint has full strength when dry fitted and can then be dismantled.

## Machined joints

All of these joints can potentially be made by machine with suitable jigs or by CNC, but compared to hand tools, the time taken to set up one of these options would not be worthwhile for anything less than a small batch.

Simplified versions of the joints can also be made with a basic template jig and router, such as the modified Kanawa-tsugi shown here. This might justify their use to make matching joints on the legs of tall display shelving, for example.

## Conclusions

Splicing joints have not been widely used by traditional furniture makers and these ones were largely developed for Japanese wooden architecture. In constructional terms, this is an extremely good pedigree considering they have been subjected to centuries of rain swelling and sun shrinking and also tested by frequent earthquakes.

In contemporary furniture, tsugi joints offer potential for making better use of small but valuable timbers, combining contrasting timbers to create exciting visual breaks and enabling larger structures to be assembled on site with authentic joinery.



The Kanawa-tsugi is an obliquely spliced scarf joint with mortised rebates at each end to prevent sideways movement. Here the sides of an end mortise are being sawn before removal with a coping saw and cleaning up the socket base with a chisel



The stub tenon of the Kanawa-tsugi joint is formed by rebating either side with a paring chisel



Final fitting of the Kanawa-tsugi joint is by interlocking the two halves and sliding them together, leaving an opening in the middle for a peg



A simplified straight version of the Kanawa-tsugi joint without the angled internal face has the advantage that it can be cut with a router

## NEXT MONTH

We will look at gooseneck joints as well as some rather unusual Japanese takes on the dovetailing principle *F&C*





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PHOTOGRAPH BY CHARLES MAK, UNLESS OTHERWISE STATED

# SawStop: 10 years of cutting-edge technology



**Putting safety first has made SawStop No. 1 in the US, but as Charles Mak explains, it has a lot more going for it than what's under the table**

SawStop saws, the only saws with a blade-stopping feature, and now North America's No. 1 selling cabinet saws, are celebrating their 10th anniversary, coinciding with the release of the sliding crosscut tables. I have used the industrial version of the SawStop saw before and six months ago, I finally purchased my own SawStop cabinet saw. In this article, I will share with you my experience of setting up the new saw and how I have tailored it specifically for my workshop.



**Tuning up a tablesaw can be done with low-tech or hi-tech gear**



## Reasons for choosing SawStop

In 2009, the US Consumer Product Safety Commission found in a two-year stationary saw injury study that tablesaw injuries accounted for 78% of the 101,900 injuries recorded. However, neither this nor the alarming numbers found in the SawStop brochure – for instance, 10 tablesaw amputations every day – was why I ultimately chose SawStop. As a hobby woodworker adhering to safe shop practice, the 'finger-saving' feature was only a bonus factor in my consideration.

The SawStop cabinet saw excels in two critical areas that my old contractor saw failed at badly: accuracy and dust collection. The SawStop's easy-to-use overarm dust collection is billed to have a 99% below-table dust collection capability. It is the most effective and user-friendly tablesaw dust system I have ever used.

The saw's footprint is only marginally larger than my old machine and despite its heavy cast-iron construction and overall weight of about 250kg it is easily manoeuvrable, thanks to the hydraulic mobile base.

## The SawStop technology

Woodworkers around the world have seen SawStop's unique brake system through its famous 'hot dog' demos on YouTube – over four million views – or in person. The confident Steve Gass, the inventor of the technology, once even used his own fingers to demonstrate his blade-stopping system.

In a nutshell, the blade carries an electrical signal, which is constantly monitored when the tablesaw is ready for use. A change to the signal, for example, due to skin contact, triggers the brake, stopping and dropping the blade below the tabletop. All that happens in less than five milliseconds. To put that in perspective a typical full airbag deployment in a motor car takes about 20 to 25 milliseconds and the blink of an eye about 200 milliseconds.

But, how reliable is such flesh-sensing technology in stopping a blade typically spinning at 170km/h? The record speaks for itself: over the 10 years since the first saw was sold, no known failures have surfaced from any of its 40,000 owners.



The dust shroud rises and lowers with the quick-change riving knife, eliminating the need to adjust the shroud when cutting stock of different thicknesses



The brake system responds faster than the airbag deployment in a car

## Assembly

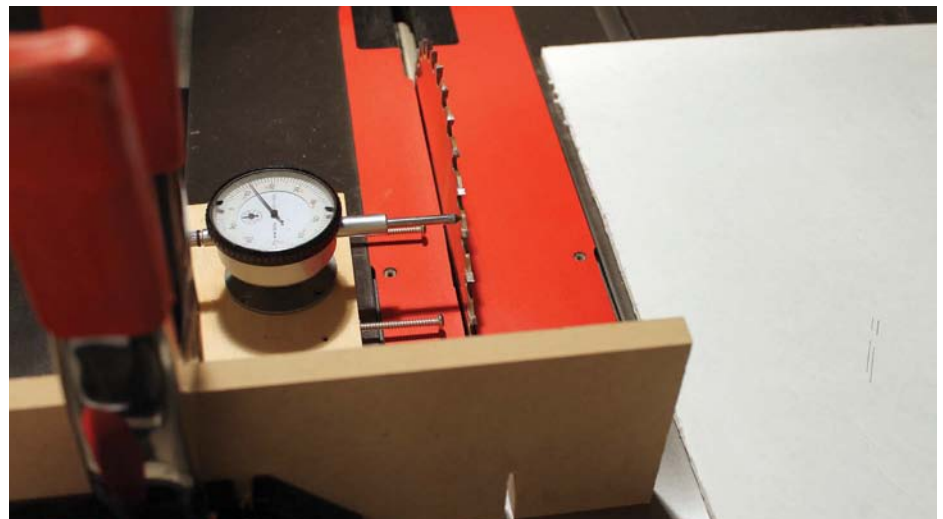
The SawStop arrived at my shop in boxes on a pallet. If quality is SawStop's niche, it starts with the user's manuals. They are written in English understandable by any average woodworker. Screws, bolts, etc. for the assembly were kept in separate packs and labelled, corresponding to the assembly instructions. Taking my time, I used about six hours to put the saw together. The only help I needed from my neighbour was to stand the main body upright and place it onto the mobile base.

## Setting up

A new saw must be properly checked and tuned up for achieving straight and square cuts in three key aspects: 1) blade alignment, 2) mitre gauge alignment and 3) rip-fence alignment.

## Blade alignment

To get accurate crosscuts or use jigs on the mitre slots – such as the tenoning jig – the mitre slots and the blade must be parallel to each other. I used a combination square for checking. Place the square's head against the inside edge of the slot and extend the ruler until it touches one of the blade's front teeth. Rotate the same tooth to the rear and slide the square down to check whether the tooth meets the ruler as it did at the front. If so, the slot and the saw blade are in alignment. You can also use a feeler gauge to determine how far the alignment is off; I ignore any misalignment that is less than 0.06mm. If you want a higher level of accuracy with your saw, you can go with a dial indicator and even a calibration plate.



For better precision, use a dial gauge along the mitre slot to check the readings at the front and trailing edges of the blade



Slide the square against the inside edge of the slot and check against the same tooth at the front and rear positions

#### Mitre gauge alignment

To set the mitre gauge for square cuts, you can align the head square to the blade using a drafting triangle. An American woodworker, Larry Schaller, came up with a more accurate method: he attached a board to a snug-fitting runner and trimmed off one side of the board. He then used the trimmed edge for setting the mitre gauge.

#### Rip-fence alignment

Always check or set the fence square to the saw table before aligning the fence. If you've used Schaller's method to align the mitre gauge, you can also use it to check the rip-fence alignment by flipping the jig around and bringing the fence up against it. Another way is to use the saw blade as the reference point: after attaching a straightedge to the body of the saw blade with two small rare earth magnets, slide the fence against the straight edge. If the fence is flush with the edge of the rule, the blade and fence are properly aligned. Excessive burn marks and crisscross saw marks are some of the symptoms of a misaligned fence.



The mitre gauge can be set square using a drafting triangle against the body of the blade



A more accurate method is to use the trimmed edge rather than the blade itself to square the mitre gauge



The trimmed edge can be used to check the rip fence alignment



A straight rule can get the fence aligned within 0.05mm over the length of the rule

## Shop-made enhancements

In North America, cross-cut sleds are built and used in a manner like the sliding tables. I have made a dust shroud for my cross-cut sled to take advantage of the overarm dust collection. Using scrap lumber, I also built a folding outfeed table which is more stable and easier to set up than a roller stand. In addition, the outfeed table legs rest on the mobile base of the saw rather than the floor, maintaining the same level with the table top at all times. Finally, my friend Rick Blaiklock, an executive in tool R&D, cleverly uses a blast gate to improve the overarm dust suction whenever needed.

### A quality saw is a safer saw

Many high school workshops and commercial woodshops in Canada have switched over to the SawStop technology in an effort to reduce shop accidents. The SawStop feature is, however, seen by some, especially those in Europe who are accustomed to the crown guard feature on their saws, as unnecessary. Some also view the brake technology an incorrect focus on minimising the effects of an accident. They point out that the technology potentially may make some people become complacent about their workshop safety. Given the difference in shop culture, it is not surprising that the SawStop is far more popular in North America.

I look at the blade-stopping technology the same way I feel about the airbags or anti-lock braking system in my car: it won't prevent accidents and I should not rely on it for my own safety. The additional protection is not an invitation for me to lower my guard or be careless. All SawStop owners also know that if the cartridge is triggered,



The foldable outfeed table has its detachable legs rest on the mobile base. Note that the overarm dust tube meets the dust port at a right angle in the factory design

they will lose some valuable shop time – unless they keep a spare cartridge – their prized saw blades and above all, a part of their egos.

My workshop practice hasn't changed since the new saw was used, except one thing: I have found myself using the tablesaw more and doing more projects, because the machine produces dead-on accurate results

every time and the sawing is practically dust-free. The machine is a joy to use in the real sense. That is how enjoyable woodworking should be! *F&C*

#### Supplier details

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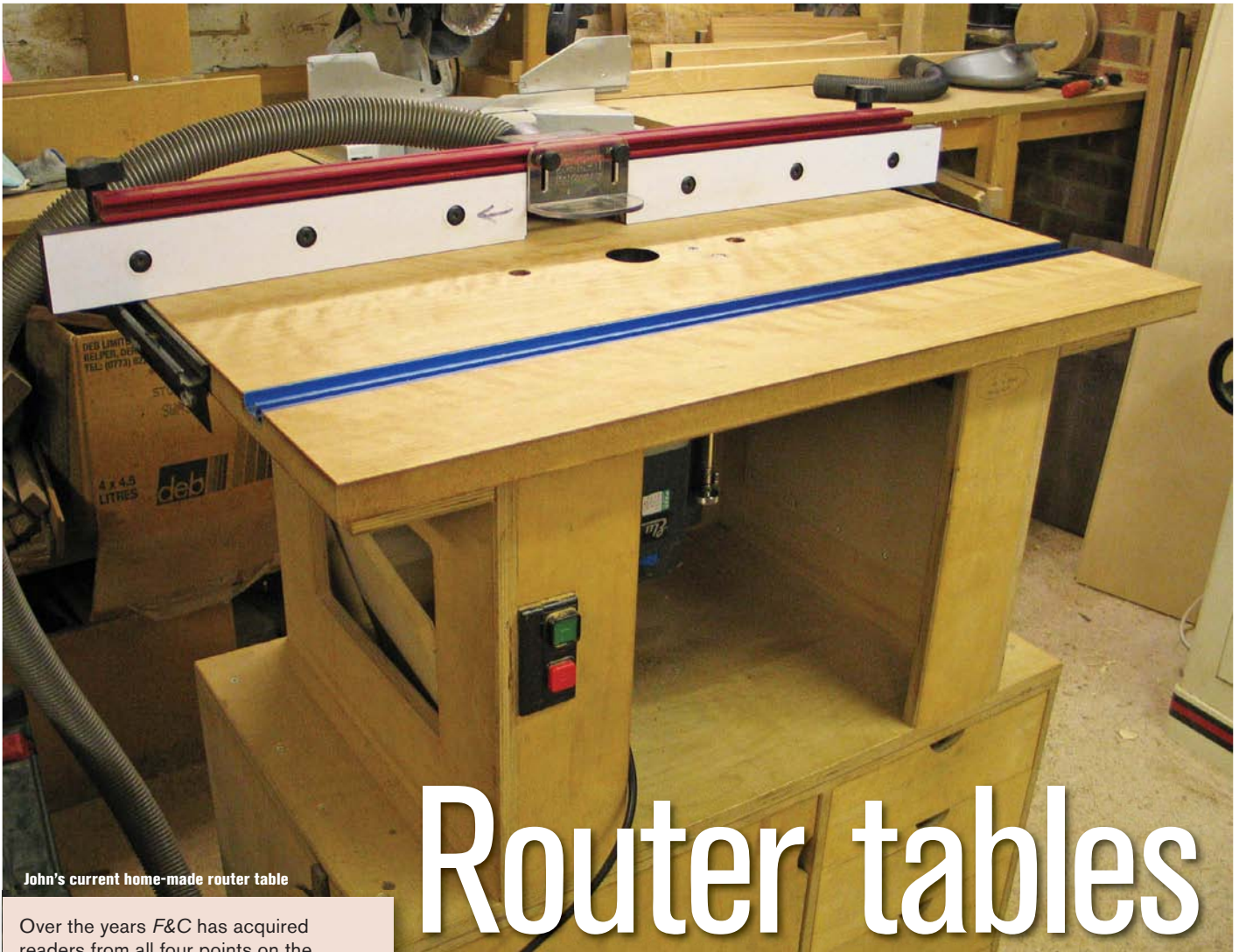


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# Our correspondent...



PHOTOGRAPH BY JOHN LLOYD

John's current home-made router table

# Router tables

Over the years *F&C* has acquired readers from all four points on the compass and since going digital in 2013, that trend has increased. You can find us anywhere in the world with a link to the web. As the content of the magazine is a true reflection of our readership, we've decided to introduce a new style of article that will take us on a workshop tour of the globe.

Our reporter this month is a bespoke furniture maker who was our correspondent back in issue 228. He returns again this month to talk about his trials and tribulations concerning router tables. After years of blood, sweat and tears, as far as router tables go, he has come to realise that his trusty 25-year-old arrangement is perfectly fine, until he decides to invest in a serious piece of kit. Ladies and gentlemen, our global correspondent this month is John Lloyd.

**Do you have problems with router tables? If so, you're in good company. John Lloyd has a history of tabletop dramas**

**H**aving just moved all of my machinery into a nice shiny new workshop, I thought that everything was under control on the wood machining front, but then someone tried to use the router table!

## My router table journey

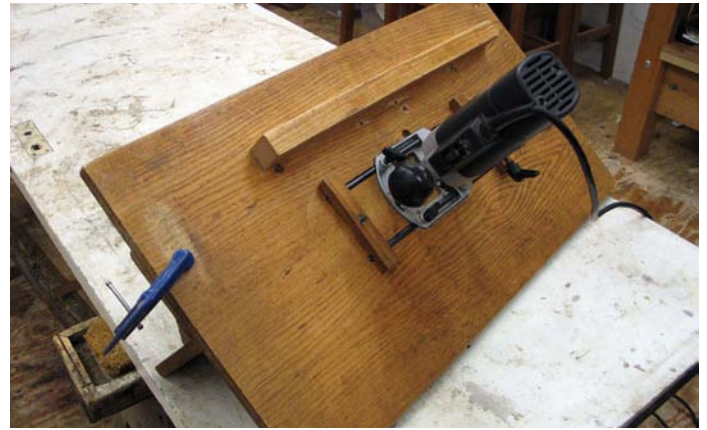
My router table journey actually started about 25 years ago, but since that time, it has turned into a rather sad and sorry litany of failures and frustration. There have been brief moments of joy, but after a promising start, the router table has become my machine-shop's Achilles' heel, and it's not as if I haven't put in a fair amount of time and

energy into solving what seems, on the face of it, to be a pretty simple challenge. All that's required in a router table is for a router to be secured upside down into a flat surface, which is fitted with a movable fence – how difficult can that be? My router table journey started with a shiny new 1/4in Elu router, but I felt that I needed a router table in my life. Times were hard back then, but fortunately, a friend of mine shared a router table design that he had just come up with: it was very simple, quick and cheap to make, took up very little space when not in use and worked extremely well. It's only limiting factor was that it was a tiny bit flimsy and the





The original and still, so far, the best!



John's original router table with simple wooden 'quick-release' toggles

small router that it held would only take 1/4in cutters. Having moved my workshop, business expanded, projects became larger and occasionally I felt that the workshop would benefit from a router table with a big powerful 1/2in router. It was at about this time that *F&C* was born, with Paul Richardson at the helm. It was he who persuaded me that I might like to write for the magazine and it also transpired that he had no further need for his home-made 1/2in router table, which found its way into my workshop, complete with a cupboard for routers and drawers for cutters, spanners and other routing accessories – this was definitely going to be a big improvement. Well, actually, it turned out that this was the start of a rather protracted router-based conflict.

### Overcoming problems

Despite the theory of fitting a router into a table being a pretty simple one, the reality is that there are several serious issues that must be overcome. The first is the practicality of changing cutters on a router that is hanging upside down in a confined space. We tried the Triton router and most recently the 'Xtreme Xtension', which gives the router more reach and does away with spanners and bleeding knuckles. The extra length can give vibration problems, however, and someone here actually managed to kill the first router that it was fitted to by bending the router's spindle. We also manage to destroy the lock screw on a fairly regular basis. Mounting the router is another challenge: the standard solution is using a commercially produced table insert, but with a big heavy router hanging



The 'Xtreme Xtension' preserves knuckles but can cause vibration issues

from a piece of, albeit high tech, plastic, there tends to be a concave area in the table around the cutter, which is not likely to enhance accuracy. Several years ago, I replaced Paul's original top and flimsy insert with one from Kreg, but finding this not to be much of an improvement, in a more recent update I removed the Kreg and installed a thicker veneered MDF top with no insert, using the same mounting system as my original table, utilising the router's fence bars and some wooden toggles. This, by and large, has been successful although the central hole has grown as larger diameter cutters have been required – not a huge problem but there is now a reasonably large hole in the table, which means that a false table is required when working on very small workpieces.

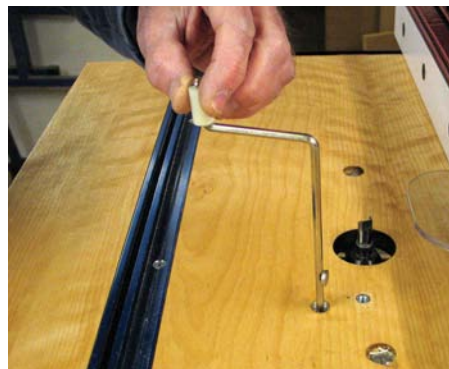
### Height adjustment

The final major challenge is to adjust the

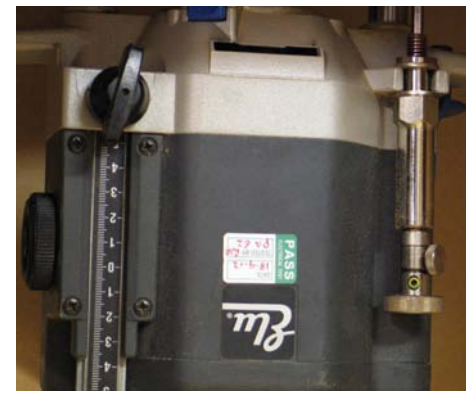
height of the cutter without having to revert to a rather Heath Robinson arrangement involving a car jack or long levers. At one point, I thought I'd solved this with a Triton router, which is designed to be used in a table, but I found the height adjustment to have the rather annoying habit of self-adjusting when the motor was switched on and the electronics decided they'd had enough of life twice in a year. The 'Router Raizer' is currently fitted to my MOF 177 router and it actually does a pretty good job. It can be adjusted from above or below the table but it works on only one side of the router and this slightly lopsided arrangement on a heavy router can give a slightly jerky adjustment, although regular lubrication helps. The mechanism has also come apart a couple of times in use and a little circular metal cover that is designed to stop the adjusting point in the surface of the table from filling with dust finds its way into the dust extractor with monotonous regularity. My battles continue, things generally improve a bit but seem to end up ultimately being a little disappointing. I haven't given up on coming up with a reliable router table and I realise that whatever we have has to put up with a lot of use from the many users that we have here. I think the truth of the matter is that I'm going to have to invest in a proper router lift, or perhaps a spindle moulder, like the Felder, which can be fitted with a high speed routing spindle, but in the meantime, I find myself once again reverting back to my trusty 25-year-old table whose elegant simplicity still brings a little joy into my life every time I use it. *F&C*



Router tables usually have annoying inserts – the Kreg had to go



Adjusting the cutter height on a Router Raizer couldn't be easier but the small metal cover often makes a bid for freedom



MOF 177 fitted with a Router Raizer, which is generally a pretty good bit of kit





**Marking gauges take the maths out of woodwork, offer instant repeatability for laying out joinery and are very helpful when dimensioning stock, as Anne Briggs Bohnett finds out**

# Marking gauges:

## the often overlooked 'shop workhorse

**A**fter the Jack plane, marking gauges are my second favourite tool. There are many reasons for this, but the first is in the name: the tool is for gauging, not measuring. As much as I hate to admit I'm terrible at anything, I am absolutely rubbish at maths. No matter how many times I measure and calculate, it is inevitable that at least one piece in each of my projects will come out just a hair too short or too skinny. I once assembled an entire tabletop and somehow didn't notice until I actually tried to mount it to the base that it was a full foot too short. With the use of marking gauges, dividers and story sticks, I've all but eliminated maths and measuring from my projects, which has since saved me lots of frustration, time and money.



**Traditional 'pin' marking gauges**



## To scratch or to cut?

For the purpose of this article, I have lumped together two fairly different tools under the name 'marking gauge'. Traditionally, marking gauges employed a pin, which would engage the wood and basically scratch in your mark. When marking across the grain, if you are not careful, the pin will break away the fibres at the end of the cut. This can be avoided by marking two lines from opposite edges of the board, stopping short of the edge and meeting in the middle. When marking

along the grain, many beginner woodworkers struggle to keep the pin from following the grain of the wood and wandering away from the intended path.

Today there are 'cutting gauges', which employ a knife in place of the pin to cut the fibres of the wood as it marks. In the woodworking community, I have found the 'knife versus pin' debate to be nearly as explosive and divisive a topic of conversation as 'the best way to sharpen a tool', so please

read on with an open mind.

I learned woodwork using a wheel gauge, have recently acquired a few additional styles – both knife and pin – and have found advantages and disadvantages in each.

For those staunch traditionalists set on using pin gauges, this tip from Frank Klaus may come in handy: using a safe edge file, the tip of pins can be shaped to make a more knife-like cutting action when marking wood.



Hamilton Woodworks' wooden 'cutting' gauges are small and lightweight



Modern 'wheel' cutting gauges can often come with fine adjusters and multiple locking mechanisms



A relatively crude pin gauge can be transformed into something more accurate with the help of a safe edge file

## Using marking gauges

Not much needs to be said about hand position or technique when it comes to using marking gauges. The best advice I can give is to play around with your marking gauge of choice and decide for yourself what is most comfortable and effective. Holding your work securely will greatly add to your ease and effectiveness using a marking gauge. I have found that my bench hooks are excellent marking helpers. When marking, keep your eyes on the fence of the gauge, not the knife. Be very careful to hold the fence of the gauge securely to the side of the workpiece and do not wobble, tilt or skew the gauge as you move it along your workpiece or your line will wander as a result. Instead of making one strong, heavy stroke – force increases the likelihood of a wandering cut or marred workpiece – take three strokes to mark a nice, deep line. First, take a light stroke to establish the cut; a second to deepen slightly and a third to make a good registering surface for a saw or chisel.

Having a range of gauges at your disposal, you will soon discover that some are more suitable than others for specific tasks. A small lightweight gauge might be better at marking baselines for dovetails, for example. Having more than one in your tool arsenal means you can set a critical common dimension for an entire procedure and return to it later without having to recalibrate the gauge, which helps to save valuable working time.



A mortise gauge enables you to capture and translate key reference lines in pairs



A bench hook provides a sturdy support for marking out



A wheel gauge has less tendency to split out at the edge



## Why not just use a pencil?

Many beginners wonder why a sharp pencil and ruler won't cover all their measuring and marking needs. As the pencil dulls, the lines will become thicker. It will be difficult to determine just where your baseline starts. Pencils wander, rulers slip, measurements are misread and forgotten. A marking gauge creates a crisp line in the wood that doesn't vary in thickness and makes repeated measurements a breeze. Don't swear off pencils altogether, though, because tired and ageing eyes often find it helpful to fill in the marking gauge line with pencil. Propelling or clutch pencils are a good companion for your marking gauge. These are used extensively for drafting and can be bought with fine graphite leads. The indent of a marking gauge line is also very helpful for starting a saw cut or establishing a baseline into which a chisel can be set for consistent dovetail results.

Using a marking gauge, or at the very least, a marking knife and combination square, will save you many a woodworking headache. If you're on a budget, making your own marking gauge is a fairly easy option and there are many free resources to be found online. Lee Valley Veritas also makes a quality wheel marking gauge at a very fair price. With this tool, as with any other, buy the best you can afford.

## Minimise waste, maximise thickness

To get the most out of your wood, instead of sticking with standard dimensions and cutting lists, try letting the wood determine your project dimensions. In some cases, you may find the odd millimetre here and there won't make a difference to the structure, but it could take a substantial amount of effort to remove.

Start by selecting the thinnest piece in the stack of wood set aside for your project. Plane one side flat. Use your marking gauge against the true face to find the thinnest spot on the opposite side of your board, set the gauge and mark around the whole piece including the ends. Plane down to your line, keep your marking gauge set, then start on your next piece. This setting will determine the thickness of all the boards in that stack. When finished, all your wood will be of uniform thickness and you've likely had to take away far less with the plane than you might have imagined, therefore saving wood, time and effort.

Apart from being a much quicker way of working it can sometimes be an advantage to have stock slightly thicker at the outset, which will allow for finishing or smoothing later on. In some cases, the most important thing will be to have boards of a consistent size and not necessarily to a predetermined dimension. This habit transfers equally well to a cutting list prepared on a machine resulting in fewer passes and therefore less wear on the planer knives.



The chisel registers within the knife line



Marking gauge in a pinch



Plane to the line



Marking to maximise thickness



## Community Toolchest

I met Erik Florip on Instagram about a year ago. He is a Marine, a husband and a father. Although he is a lover of a simple life, he is dedicated, driven and very hard working. With Florip Toolworks, he strives to make quality tools 'like they used to'. He was one of the first toolmakers to get involved with the Community Toolchest project when he offered to trade one of my custom chisel sets for one of his custom saws. I was blown away by his ingenuity and the quality of his craftsmanship and I knew then he would soon become a force to be reckoned with in the toolmaking world. When I saw his prototype for this marking gauge, I had to have one, so we worked out another trade. "When I was young I heard an old man say 'when it comes to quality, heavy is better'." Erik definitely took that to heart when making his marking gauge. This tool has some serious heft to it. Some things that set this gauge apart from its competition are the solid components, a wide fence – which gives a solid footing when pushing it against a workpiece – the square edges – so it won't roll off the bench – the micro-adjuster that can be used with one hand and a steeper bevel on the blade, which creates a larger registering surface as it cuts, resulting in deeper, easier to see lines.

After using a 100mm Hamilton marking gauge in my friend Chris Kuehn's shop, I bought one. Chris then introduced me to Jeff and Jeff promptly donated a second gauge for the Community Toolchest Scholarship initiative – a quality toolset given to a woodworker in need at the end of the year. From our first introduction, Jeff stood out to me as kind, compassionate and generous almost to a fault. Excited to invest in the next generation of woodworkers, Jeff is passionate about making quality tools and is very eager to share information and techniques. Jeff is a family man through and through and he has a quirky sense of humour that makes him all the more approachable. For Christmas this past year, Chris and Jeff plotted together to make me a gorgeous 150mm cocobolo (*Dalbergia retusa*) gauge,



Florip Toolworks wheel gauge



Hamilton Woodworks marking gauge

one I will always cherish because of the story attached. The tools Jeff makes are gorgeous to look at, feel like an extension of one's own hand in use and are dead accurate. The bodies of the tool are made of wood so they are warm and smooth to the touch. They are light but solid and are arguably some of the best marking gauges on the market. The small gauges easily fit in the pocket of your apron and, despite their size, are very versatile. The wide fence allows plenty of surface area to be supported by the stock so the cut doesn't wander. The shallow

fence lends itself well to laying out half-blind dovetails and the fingernail blade design keeps the fence pulled tight against the stock as you make your mark.

The wheel and wooden versions of these tools both have incredible value in any toolchest. I find myself reaching for one just as much as another. Price-wise, they are both on the higher end, but these are heirloom quality tools you will buy once and use for a lifetime. A marking gauge is easily one of the most used tools, so choosing one you will love is a must.

## Sharpening a marking gauge cutter

*Sharpening a pin gauge is done with a file by shaping the pin as you would with a knife. Cutting gauges usually have a removable cutter. This method can be used with a few easy variations to sharpen wheel cutters as well. First, rub the back of the cutter on a fine stone until you feel a burr appear across the whole bevel. I find I can easily do this with one finger. Then, you need to carefully hone away the burr on the bevel by using a strip of leather and honing compound. If your fingers are too big to grasp the small cutter, a pair of locking pliers can give you a bit more wiggle room. F&C*



Feel the burr



Hone away the burr



# The saw doctor will see you now

In the first of a new series, the man behind Bad Axe Tool Works, Mark Harrell, explains how you can tell if an old saw is really worth saving

PHOTOGRAPH BY GARY DECK, JONES

You've eyed Grandpa's old Spear & Jackson handsaw for years before discovering a passion for woodworking and now it's time to knock the rust off the plate, repair the horns and send it off to a saw doctor to straighten out the toothline and put a fresh edge on the teeth. But apart from sentimental value, how do you know if it's even worth saving? Taking it a step further, you also purchased a century-old Groves & Sons brass-backed backsaw from eBay recently, but there's scattered pitting on the plate and the seller didn't tell you about how the toothline presents a serpentine S-roll, which will never allow the saw to cut right. Are these saws worth saving? Probably, but perhaps not. Let's find out.

## Handsaws



PHOTOGRAPHS BY MARK HARRELL, UNLESS OTHERWISE STATED

Sighting down the toothline of a handsaw

There are steps you can take now to determine if they're worth putting money into. Let's start with handsaws first. We're going to 'flex-test' the plate – something I do before purchasing any handsaw – to see whether enough life exists in a tool that

was exquisitely taper-ground and hammer-smithed taut by master craftsmen from the 19th and early 20th century.

### Step 1

Sight down the toothline. Chances are, you'll find a bow or two. While this can probably be hammer-smithed straight, you'll still need to know whether enough tension remains in the old plate before paying good money to have a saw doctor tune it up.

### Step 2

Circle the plate into an 'O', then let go of the toe end of the sawplate so it can 'spring' back into true. Remember that sawplate alloy is spring steel – a high-carbon alloy used in car suspensions, springs and in our case, sawplates. The plate won't break; the nature

of spring steel should allow the plate to spring back into true.

### Step 3

Sight down the toothline again. If the toothline remains flexed by more than 10° in the direction you flexed it, then you might well have a problem that's beyond repair. Let's confirm our suspicion.

### Step 4

Now circle the plate in the opposite direction and again, let the plate spring back into true. Sight down the toothline. If the plate has flexed back into a relatively straight toothline, give or take a few degrees, then it's worth saving. On the other hand, if it is now flexed 10° or more in the new direction you've flexed it, then your saw should be retired.



## Backsaws



Looking at a variety of sawbacks



Re-tensioning the heel and the toothline of a backsaw



Re-tensioning the toe of a backsaw

Moving on to backsaws: all vintage backsaws manufactured before the 1980s and some backsaws fabricated today – such as Bad Axe and Gramercy – utilise a traditional folded backsaw serving to stiffen the plate. Whether brass or carbon steel, these sawbacks are sprung onto the spine of spring steel significantly thinner – at .018-.025 – than that which you encounter with most hand and panel saws – .032-.042. The sawback is what stiffens a backsaw's plate to make precise, thin-kerfed, furniture-grade cuts. Here's how to assess and even re-tension the toothline:

### Step 1

Sight down the toothline: chances are, you'll see what appears to be a bow or kink. What you're seeing is not actually a kink, but an S-curve or a slight twist where the plate slipped out of tension from where the sawback clamps the spine – likely caused by torquing the plate with a difficult cut or from having been dropped.

### Step 2

Hold the saw down upright on a jointed flat surface and bear down on it with the heel of your hand – about 10psi – just in front of the handle.

### Step 3

Pinch the underside of the sawback ahead of the handle with your thumb and forefinger, while resting the heel of your hand along the top of the sawback. Exert slight downward pressure where the heel of your hand is bearing down on the sawback.

### Step 4

Using a dead-blow mallet, gently tap the sawback where it is revealed above the mortise receiving it in the handle. You should feel the sawback shift on the plate ever so slightly where it binds to the sawplate.

### Step 5

Now reverse your saw and this time gently tap the toe end. Don't overdo it – just a gentle tap. Again, you should feel the back shift on the spine of the plate.

### Step 6

Hold the toothline up to good light and sight down the teeth – the S-curve should have straightened out now and is a good candidate for rehabilitation. What you have done is promoted a see-saw effect with the sawback along the spine of the plate. This shift in clamping tension at both ends of the plate has equalised the back's clamping tension along the spine, thus truing up the toothline.

## Conclusion

In conclusion, flexing a handsaw plate to assess how much tension remains in the spring steel is the key criterion as to whether or not it can or should be saved. As for backsaws, a few simple taps fore and aft will tell you within seconds whether that plate is any good. At the end of the day, horns can be repaired by grafting new wood onto them; plates can be scrubbed rust-free. The most important thing is knowing how to assess the metal sawplate itself before you find yourself throwing good money after bad. *F&C*



'Flex-testing' a handsaw

### Supplier details

**Contact:** Bad Axe Tool Works

**Web:** [www.badaxetoolworks.com](http://www.badaxetoolworks.com)



# Inside story

**So, if beauty really is on the inside, why don't we pay it more attention? Derek Jones and Steve Morris try out General Finishes' milk paints to see if their outside finish is as good on the inside**

One of the first things I learned to do as a Saturday boy in a restoration workshop was to remove the varnish, polish, lacquer or whatever finish it was that happened to have been deemed not worth saving. Like making the tea and doing the sandwich run, it wasn't really what I signed up for; after all, when you've stripped one chair what else could possibly be learned from stripping the other five in a set?

In fact, there's a lot you can learn from dismantling something and even more if you do it repeatedly. Reverse engineering reveals how things were constructed – in some cases, what tools were used in the process and if we're observant, whether the overall method has stood the test of time. In this respect, a surface finish is no different.

When it came to the refinishing, not every piece that passed through the workshop was completed in-house and on more than one occasion, a request would come from the polisher to keep a sample of the original finish. It didn't make a lot of sense to me then, but I've since learned to appreciate his forensic approach in determining how to replicate an old finish.

## That was then

Typically, most refinishing will be done on the show faces of a piece of furniture where there will have been extensive wear or damage of some kind. Less likely to be treated were the under sides, back boards or internal faces. Ask any expert what they look for to date a piece of furniture or assess its authenticity and they'll tell you that the bits you're not supposed to see are far more revealing than the bits you are.

In a lot of instances, these might well have been made from cheaper timbers: a pine (*Pinus spp.*) of some sort perhaps, or beech (*Fagus sylvatica*) or even a plain mahogany (*Khaya ivorensis*). In the restoration shop, the finish on these surfaces was rarely touched and every effort was made to protect them for one very good reason – they were almost impossible to recreate convincingly and even harder to patch up.

Researching this aspect of finishing it's clear that pigments held in suspension, rather than stains, are the most common

ingredients used in these surface treatments. Pigments are better at concealing blemishes and imperfections as they quite literally remain on the surface when the solvent or medium has either evaporated or cured. Stains, on the other hand, have a tendency to highlight them. If the material being treated has areas that are less porous than others, the tonal difference will be exaggerated.

It might be that each polishing shop had its own recipe for treating these parts, or perhaps they just made them up with whatever came to hand at the time. Whatever the reason, I've always been fascinated by them as they present more of a challenge to reproduce than show surface finishes.



**An inky black glaze over a red or orange base colour can pass for mahogany or rosewood on backboards**

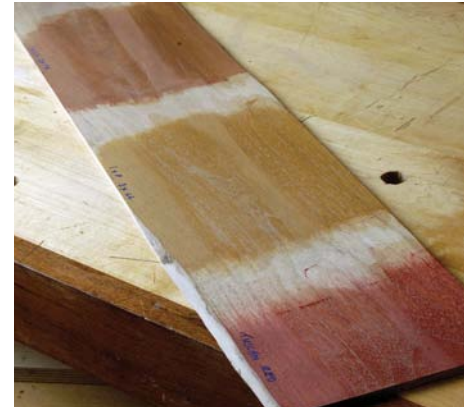
PHOTOGRAPHS BY GARY DEREK JONES UNLESS OTHERWISE STATED



## This is now

When I look at a lot of contemporary furniture the insides are typically finished just the same as the outside and, if I'm honest, it bugs me a little. There doesn't always seem to be a good reason for it other than that's what they did on the outside so it'll be OK on the inside. In a commercial environment I know it can be easier to blast the same lacquer everywhere in one go, but for the small 'shop, this is an area where you can make some subtle changes and emphasise the bespoke nature of your work. We use contrast far more readily on the external aspects to make obvious visual statements. But subtle changes in texture and especially colour temperature can elicit as much, if

not more, emotion than just more of the same shiny surface. Personally, I don't see this as a cop out or a shortcut but a clear and conscious attempt to create a different experience between different elements. What I'm going to look at in this article are a couple of options that will demonstrate how contrast in colour, texture and medium can add interest to your work and give the experts of the future something else to consider. If you try this out, do yourself a favour and write it down. If you want to experiment further you can use these finishes as they were originally intended to mask the cheaper materials used in casework like soft wood. Sheet materials don't work as well.



A sample board of pigment washes on a poplar board to emulate mahogany, light oak and walnut

## Milk paints

We first looked at milk paint as a finish when Marco Terenzi used them on his quarter-scale Anarchist's Tool Chest – see *F&C* 224 to 226. He chose to mix his own using powders, which is the traditional method. General Finishes, however, produce a remarkably authentic product with all the benefits and none of the fuss. Strictly speaking, it's not milk paint as it comes ready-mixed and good to go after a quick stir. These paints are water-based and therefore virtually odourless. The choice of colours might be a tad gaudy for high-end cabinetwork but as they say, don't knock 'til you've tried it.

The products are primarily designed for use on external surfaces and are particularly effective when used outside after applying a suitable clear topcoat from the same range.



Marco Terenzi's Anarchist's Tool Chest, finished using a variety of traditional milk paints

## Drying time

*It's worth mentioning that water-based finishes can take up to a week to fully cure, four days at the best, so a top coat of a different solvent, perhaps a wax polish, will have a detrimental effect on the actual drying time. That's not to say that they remain tacky during the process, merely not at their best. This in itself can be a godsend and you'll know this already if you use oils and share a space with other woodworkers. While oils are still attracting dust and bugs for eight hours solid, most water-based finishes have moved beyond the critical stage in the time it takes to brew up. Oil finishes also have nasty rags that need to be disposed of appropriately when you've finished with them, whereas water-based finishes do not.*

## Finishing inside



Improve adhesion of water-based products to waxy timbers by wiping the surface with methylated spirits

From the General Finishes range there are two colours that lend themselves to an authentic period wash: brick red and Tuscan red. These remind me of the washed-out interiors of mahogany veneered chiffoniers or bookcases where an attempt has been made to match the cheaper case material with the expensive show veneer.

To replicate this look, first sand to about 180 grit and then wipe over with methylated spirits to neutralise any waxy deposits.



The foam applicators from General Finishes are the best means of achieving an even coat

Apply the paint sparingly with a brush or foam applicator and wipe off any excess. Avoid overlapping strokes and work small areas at a time. If that's not feasible, then work in narrow straight lines with the grain. Better still, don some gloves and wipe the paint onto the surface, thinning it out as you go. If you've chosen the right colour first time that's it, you're done and a second coat or wax won't be necessary. Thinning with water will slow the drying time but affect durability.



Scrub the surface of coarse grain timbers like oak with a wire brush to maintain a consistent texture



## ◀ Blending colours

It's possible to blend the General Finishes' milk paints and if these two reds aren't brown enough for you, then try adding a touch of green. Persimmon and lime green make a reasonable shade of brown. By today's standards, these colours are quite shocking on their own but throughout the 18th and 19th century, furniture was frequently adorned with bright silks and veneers. Non-show faces were treated to correspond with the colour scheme.

For a solvent-based recipe that you can use with shellac, check out the blog at [www.woodworkersinstitute.com](http://www.woodworkersinstitute.com).



Three-parts Tuscan red to one-part lime green is a good match for walnut



These vibrant colours may not have much appeal on their own but when mixed, it's quite a different story



Softwood, knots and all, can be disguised with the right colour wash

## F&C mini test – General Finishes' milk paint

*Having recently built a Dutch Tool Chest, I had to decide what type of finish to use and wishing to stay with tradition, I decided against any kind of varnish or polish. The obvious choices were a standard latex paint from a DIY store or more traditional milk paint in powder form. Traditionally, these toolboxes were finished with milk paint so I was keen to go down that route. While the General Finishes product is an acrylic and therefore not strictly a milk paint, it does give the desired look and feel, but with the convenience of a ready-mixed paint.*

*My first thoughts on opening the tin were that it was thicker than I had expected, but it proved to be a nice consistency that flows well – you do have to stir the paint periodically to maintain that consistency.*

*I used the foam brushes from General Finishes to apply the paint and these were themselves a revelation to me. The paint went on beautifully – with no need for a primer coat – and runs were easily controlled. The chisel shape of the foam brushes left a smooth finish and were great for getting into corners and up to edges.*

*The manufacturer has good online instructional videos showing how best to apply their paints; I followed these, using the recommended sanding pads and tack cloths in-between coats. Two to three coats of paint are suggested and I got a nice result with three light coats.*

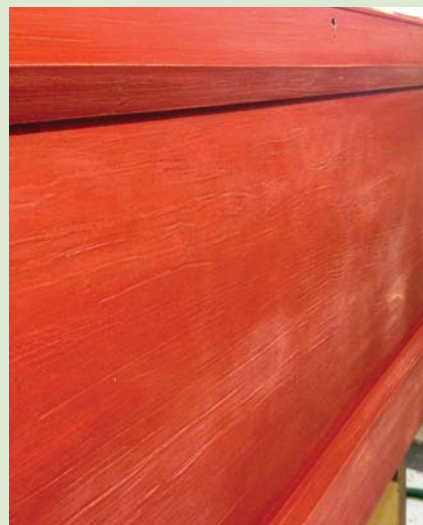
*Although the foam brushes worked very well, I thought for completeness that I should try other methods of application. I found regular brushes were a little messier to use and more prone to runs, so I soon reverted back. Spraying the lid of the chest gave good results – I used a 2.0mm needle in the spray gun and no thinning of the paint was required. Cleaning of painting equipment was easily done with warm soapy water.*

*Stated drying time for this product is two to four hours between coats, but in my reasonably warm and dry workshop this was nearer two hours.*

*Suitable for both interior and exterior use the paint is rated as 'medium' durability. To toughen it for the workshop environment, I used the General Finishes' high performance flat topcoat. This has taken away some of the chalkiness of the milk paint but it should hopefully make it more hardwearing.*

*I am pleased with the look that this General Finishes paint gives and with the ease of application, it should continue to look good over time with the protective topcoat. I'd happily use it again and it is a great no-fuss alternative to the traditional powder milk paints. F&C*

**Steve Morris**



Cutting back between base coats results in a smoother finish



The Dutch tool chest with lamp black over brick red with a clear satin protective topcoat



General Finishes can provide you with the complete finishing kit

### Supplier details

#### Prices:

**Milk paint:** From £20.30 for 473ml

**25mm Poly Brush:** 48p

**Contact:** General Finishes

**Web:** [www.generalfinishes.co.uk](http://www.generalfinishes.co.uk)

PHOTOGRAPH COURTESY OF STEVE MORRIS





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Clarke CBS2	1200w	480	£69.98	£83.98
Makita 9911	650w	75-270	£94.99	£113.99

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Clarke CBS2	1200w	480	£69.98	£83.98
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CVAC20SS*	1400w	16/12ltr	£59.98	£71.98
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MODEL	MAX. MOTOR HP	FUSE	EXC. VAT	INC VAT
PC20	2Hp	10amps	£229.00	£274.80
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PC60	5.5Hp	32amps	£319.00	£382.80

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- 21 torque settings

MODEL	BATTERIES	EXC. VAT	INC VAT
CON18N	2 x Ni-Cd	£64.99	£77.99
CON18L	2 x Li-Ion	£84.99	£101.99

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Clarke CON750*	750w	80/10mm	£24.99	£29.99
B & D KS600*	450w	60/5mm	£29.98	£35.98
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MODEL	WATTS/ EXC. VAT	INC. VAT
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CDP101B	245/5	£79.98
CDP151B	300/5	£106.99
CDP10B	370/12	£169.98
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MODEL	MOUNTING	JAW (WIDTH/OPENING/DEPTH)mm	EXC.VAT	INC.VAT
Clarke	Bolted	150/152/61	£13.49	£16.19
CHT152	Clamped	72/60/40	£16.99	£20.39
Stanley	Clamped	75/50/32	£18.99	£22.79
Record V75B	Bolted	180/205/78	£24.99	£29.99

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**Makita**

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MODEL	BLADE DIA	MAX CUT BORE (mm)	DEPTH/CROSS	EX. VAT	INC. VAT
Einhell	210/30	55/120mm	£54.99	£65.99	
TH-MS 2112	210/25.4	60/200mm	£119.98	£143.98	
Fury 3	250/30	75/340mm	£159.98	£191.98	
Einhell	260/30	95/130mm	£199.98	£239.98	
TH-SM2534					
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**Clarke** **DUST EXTRACTOR/CHIP COLLECTORS**

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- Powerful 750w motor
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MODEL	MOTOR	FLOW RATE	BAG CAP.	EX VAT	INC VAT
CDE35B	750w	850 M3/h	56Ltrs	£119.98	£143.98
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- Great range of DIY and professional saws • Ideal for bevel cutting (0-45°)

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**CON185**

\*Includes laser guide

MODEL	MOTOR	MAX CUT 90/45 (mm)	EXC.VAT	INC.VAT
Clarke CCS185B	1200W	65/44	£34.99	£41.99
Clarke CC52	1300W	60/45	£59.98	£71.98
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MODEL	MOTOR CFM	TANK	EX VAT	INC VAT
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Tiger 7/250	2 Hp	7	£89.98	£107.98
Tiger 8/36	1.5 Hp	6.3	£109.98	£131.98
Tiger 11/250	2.5Hp	9.5	£119.98	£143.98
Tiger 8/510	2Hp	7.5	£129.98	£155.98
Tiger 11/510	2.5Hp	9.5	£149.98	£179.98
Tiger 16/510	3 Hp	14.5	£219.98	£263.98
Tiger 16/1010	3 Hp	14.5	£269.98	£323.98

**Clarke** **ROUTERS**

**CR1C**

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**ACCESSORIES IN STOCK**

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MODEL	MOTOR (W)	PLUNGE (mm)	EX VAT	INC VAT
CR1C*	1200	0-50	£39.98	£47.98
Bosch	1400	0-55	£74.99	£89.99

POF1400ACE

**Clarke** **CONTRACTOR CR2 ROUTER**

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- Converts your router into a stationary router table
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CS16V	120w	400-1700	£79.98	£95.98
CS5400C	90w	550-1600	£99.98	£119.98

\* Includes flexible drive kit for grinding/polishing/sanding

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**£179.98 EX VAT £219.98 INC VAT**

**WAS £191.98 INC VAT**

MODEL	MAX DEPTH CUT	TABLE SIZE (mm)	EXC. VAT	INC. VAT
FURY5	54mm	73mm	£149.98	£179.98
RAGE5	55mm	79mm	£269.00	£322.80

\*FURY power: 1500W (110V available)  
\*RAGE power: 1800W/230V (110V available)  
table extensions included  
\*was £191.98 inc.VAT + was £334.80 inc.VAT

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PHOTOGRAPHS BY FRANCISZEK DE SAGE

# It's time to make a stand



## West Dean's Franciszek de Sage puts a William-and-Mary-style chest back on its feet

This is a walnut (*Juglans spp.*) chest on a stand, also called a high chest of drawers or a highboy in the US. It is a fine example of the William-and-Mary-style furniture that appeared in England from the late 17th century and was made well into the 18th century. It is formed of two parts: an upper section, which is a chest of drawers with two short and three long graduated drawers, and a stand with three short drawers and an arch-shaped apron. The primary wood used for the frame construction is pine (*Pinus spp.*) and the secondary woods are oak (*Quercus spp.*) used for the top, sides and drawer structure,

and walnut in which the front is veneered. The construction of the upper case is typical 17th-century pinned mortise and tenon frame, but features like the drawer stops glued on the backboard and the drawers divided by single half-rounded moulding and lapped dovetails are typical for pieces made around the 1710s.

When the piece arrived at the West Dean College workshop it was mounted on bun feet. The proportions looked wrong, suggesting that the chest should be mounted on pillar legs instead of bun feet, and the top was not veneered. Most surviving examples of chests on stands have turned

legs and even though there are examples supported only with bun feet, in such cases the top would have been veneered as it was a visible part of the furniture. With turned pillar legs the piece would be about 1,500-1,600mm tall. Bearing in mind that people were shorter in those days, this would still have been tall enough for the top not to be seen. This led me to the decision to remake the stand, which involved turning six legs with new bun feet and making a stretcher. Other work that had to be done was to complete missing beadings surrounding the drawers and feather-banding.



## Making the new stand



The three new stand proposals

I started off preparing three designs for the new stand based on historical examples. As a reference for the stretcher's form, the shape of the apron was chosen – a solution commonly used in period pieces. The stand was to be constructed in the authentic manner of the period. Bun feet should be turned with a 75mm long dowel, which would go through a hole in the stretcher and into the bottom of the leg. These would be turned in a similar way with a dowel at the top to locate into a supporting block glued behind the apron of the stand.



## Turning

I used 75mm square European walnut for turning the legs and bun feet for the cabinet, as it is richer in figure than that of English walnut. To create the cup, the widest part of the leg, two walnut sections were glued on the sides. In original pieces from the period this would be a square block with four pieces glued at the widest point. This way as little material as possible would have been wasted. I had the opportunity to be more wasteful and decided to have less gluing joints.

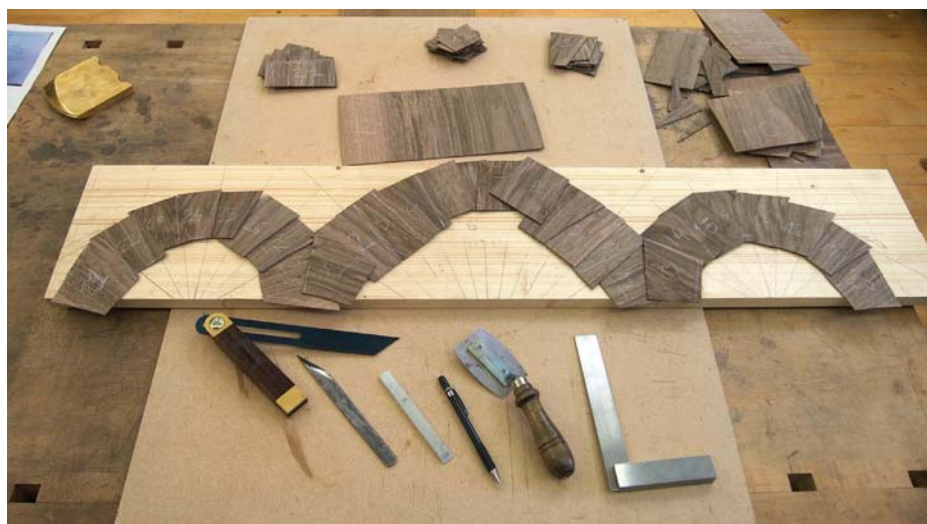


Six turned legs with accompanying bun feet

## Stretcher

I started working on the stretcher by veneering directly onto the unshaped pine boards. The veneers used in the 17th century were much thicker than modern ones as they were cut by hand from a solid billet using a frame saw. I used 2mm-thick walnut veneer going cross grain on the 20mm-thick pine substrate. I marked centre points for each of the arches on the stretcher, with additional radial lines to help orientate the veneers in an arc around the front of the stretcher. Between the arches the veneers created a herringbone pattern that corresponds well with the feather-banding on the drawers. The sides were also veneered with a cross-grain pattern at a 45° angle and book-matched to create the same impression of feather-banding. The back rail was veneered along the grain, as it would hardly be seen. When all the veneer pieces were cut to size, they were hammer veneered in turn. Each part of the stretcher was veneered separately before shaping, which allowed for easier handling. I started by cutting the shapes roughly on a bandsaw and finished with a combination of spokeshaves, files and wooden blocks with abrasive paper.

The next stage was to veneer the edges. The cross-grain pattern followed through from the top of the stretcher down onto the



Laying down veneers to create the radial pattern around the front of the stretcher

edges. To hold the veneer in place while the hot glue cured I used a combination of rubber bands wrapped around the substrate and veneer pins to prevent sliding.

This type of chest typically stands against a wall, so the back rail of the stretcher would not be seen and so in keeping with historical practice was not veneered. The individual components were lap-jointed front and back on the top of the

sides and glued together. The corners, which had to be left uncovered for gluing, were then veneered. To make the stretcher I used well over 100 separate pieces of veneer. The last stage of making the stretcher was to round off the edges, so the strong line of the thick veneer would disappear. I used French hand-cut files and wooden blocks with abrasive paper for smoothing them out.





The lap-jointed corners



The edges before and after rounding off



Veneering of the edges using rubber bands and veneer pins

## Making replacement beadings



The cut timber for the replacement beadings

Many parts of the beadings surrounding the drawers were missing or were poor replacements. The decision was taken to replace these and I chose walnut with a strong, stripy figure. I prepared small short-grain sections from a 12mm-thick piece of walnut cut into strips and backed them onto thick oak veneer as they were extremely fragile and tended to break when worked. For easier clamping in the bench vice, whole strips were glued onto a strip of pine before shaping with a combination of moulding and block planes. This method enabled me to accurately recreate the profile and pattern of the original beadings.



Short-grain sections backed with oak veneer and glued on a pine board



Shaping the beadings with a moulding plane



The finished new beadings



## Feather-banding

Although cross-banding, feather-banding or herringbone look like no more than decorative elements around the drawers, they have in fact a very practical function. The banding was added to protect the corners of the veneers on the drawer fronts from snapping off when sliding the drawer in and out repeatedly. A strip of feather-banding would have been considered almost as a sacrificial element. Instead of destroying expensive veneers, which when broken would need patching, only the strip



The newly fitted feather-banding is thick enough to withstand being levelled off with a paring chisel

around them would be damaged and need to be replaced. So the feather-banding on the chest I was working on had to fulfil its function very well, and many fragments of it needed to be completed. To remake them, I started by cutting two 10mm boards from a 50mm-thick solid piece of walnut. The cut was taken at a 45° angle. The face sides were planed and glued so that the grain was directed towards the glue joint. Later, I could just cut the end grain strips with a perfect feather-banding pattern ready for patching.



The replacement feather-banding is made up in short sections from small pieces of solid walnut

## Bleaching

As can be seen on the repairs to the feather banding on the drawers, 300 years of light exposure had made a significant difference to the colour of the walnut veneers on the chest. I now had to somehow treat all the newly made parts to match them to the original but faded veneer. A series of bleaching tests showed that the most necessary colour, light orange, could be achieved with nitric acid –  $\text{HNO}_3$ . A brush application could cause problems with overlapping strokes, so I decided to build a tent in which the new stand, with beadings and feather-banding, could be fumed. Nitric acid vapours are particularly effective at oxidising organic molecules. The fumes are produced when a small piece of copper alloy – brass – is dropped into a container with nitric acid. Good preparation is the key as the chemical reaction is very fast. The new timber remained in the tent for around 20 minutes. Appropriate precautions were taken to carry out this part of the process safely; the tent was constructed outside, access to the area was restricted to those wearing respiratory equipment, goggles, rubber gloves and aprons. Traces of nitric acid after fuming the new timber could affect any finishing materials applied over them so it was important to carry out a thorough rinsing procedure. This involved washing down with acetic acid –  $\text{C}_2\text{H}_4\text{O}_2$  – followed by a

water rinse. Before commencing any further colouring work, the surface was left to rest for a week.



The newly made parts before bleaching



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The outdoors setup for fuming



Health and safety equipment was essential



Fuming in progress



All the new parts after bleaching. Note the grey areas that were not exposed during the fuming where the legs were placed

## Colouring, finishing and distressing

The finishing process for the new legs and stretcher involved colouring with a mixture of spirit stains and earth pigments sealed in shellac polish and, finally, waxing. Bits of dirt, which accumulate on old furniture from the mix of dust and wax, were imitated by painting thin dark lines in the corners and recesses with Van Dyke spirit stain. After the stand was assembled with the chest I distressed it so that it wouldn't look too new. Distressing had to be done after polishing and waxing so that the damage would appear consistent with the new surface finish. The purpose of the ageing process was not to fake the new stand to look old but simply to blend it in with the rest of the piece. The finish as well as the marks left by some modern power tools used during the process of making would leave no doubt that it was a modern alteration but also, for maybe a less trained eye, I engraved the date of making under one of the bun feet.

## Status over practicality

The form of the chest on a stand evolved from the chest of drawers; a style of furniture that was commonplace prior to the 18th century. These pieces typically stood in secondary rooms such as dressing rooms, closets, nurseries or workrooms. In the late 17th century chests of drawers were often placed on a low stand or frame, possibly for practical

reasons and usually with a drawer in it. Chests of this sort continued to be made in the early 18th century. The change from a low to high chest implied more than a concern for improved storage capacity; it raised not only the height but also the status of the chest, giving it a visible presence equal to other large case furniture. But even with the higher status gained by placing the chest on the stand it still remained in private rooms.

Today, the status of the chest on a stand is not a matter of much concern, but it has been very rewarding to see the piece restored to its original elegance. From the point of view of craftsmanship it was especially pleasing to decorate a piece of furniture successfully with a single type of timber used in several different ways. The rich figure of the veneers, the turned elements, the short grain section of the beadings, the cross-grained stretcher and end grain feather-banding are all of the same walnut, but the different ways of cutting it have given a marvellous impression of decorative variety. *F&C*



The finished piece



**NEXT MONTH in**

**ISSUE 232  
ON SALE  
14 MAY**

# **Furniture & cabinetmaking**

**In the workshop with  
Peter Follansbee**

PHOTOGRAPH COURTESY OF PETER FOLLANSBEE

## **Construction tech**

Goosenecks and dovetails

## **Workshop tech**

Cut your large scale projects down to size

## **Tool tech**

Saw sharpening Q&A with Mark Harrell



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Precisa 4.0 P-1	Professional	Inc 1.4m STC + TLE (ditto)	3.5 / 5.2	87 mm x 800 mm	£1775.00	£2130.00
Precisa 4.0 P-2	Professional	Inc 1.4m STC + TWE + TLE (ditto)	3.5 / 5.2	87 mm x 800 mm	£1980.00	£2376.00
Precisa 6.0 P-1	Professional	Inc 2m STC + TLE (ditto)	4.0 / 6.5	110 mm x 1400 mm	£2416.67	£2900.00
Precisa 6.0 P-2	Professional	Inc 2m STC + TWE + TLE (ditto)	4.0 / 6.5	110 mm x 1400 mm	£2590.00	£3108.00
Precisa 6.0 VR P-1	Professional	Inc 2m STC + TWE + TLE + scorer (ditto)	4.0 / 6.5 + HP scorer	110 mm x 1400 mm	£2890.00	£3468.00

STC = Sliding Table Carriage. TWE = Table Width Extension. TLE = Table Length Extension.

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# Benchtop bench

In this extract from *Fine Woodworking Best Workbenches*,  
Jeff Miller constructs a benchtop bench at the ideal working height

Woodworking benches are designed to place a workpiece at a height that's ideal for hand planing. But the perfect height for planing often is too low for other common bench tasks. For example, when routing, carving, cutting dovetails or doing layout, I frequently have found myself

bent over at an uncomfortable angle so that I could see clearly and work effectively. When performing these tasks, I like to have a workpiece positioned 150-255mm above my waist level. To bring a workpiece to my ideal height range, I made a small workbench that mounts quickly to my regular bench. When extra

height is needed, the mini bench effectively raises the work surface to my comfort zone. The bench is easy to move, stores nicely under my bigger bench and includes a vice that provides plenty of holding force. I made the bench out of maple (*Acer saccharum*), but any hard, dense wood will work.

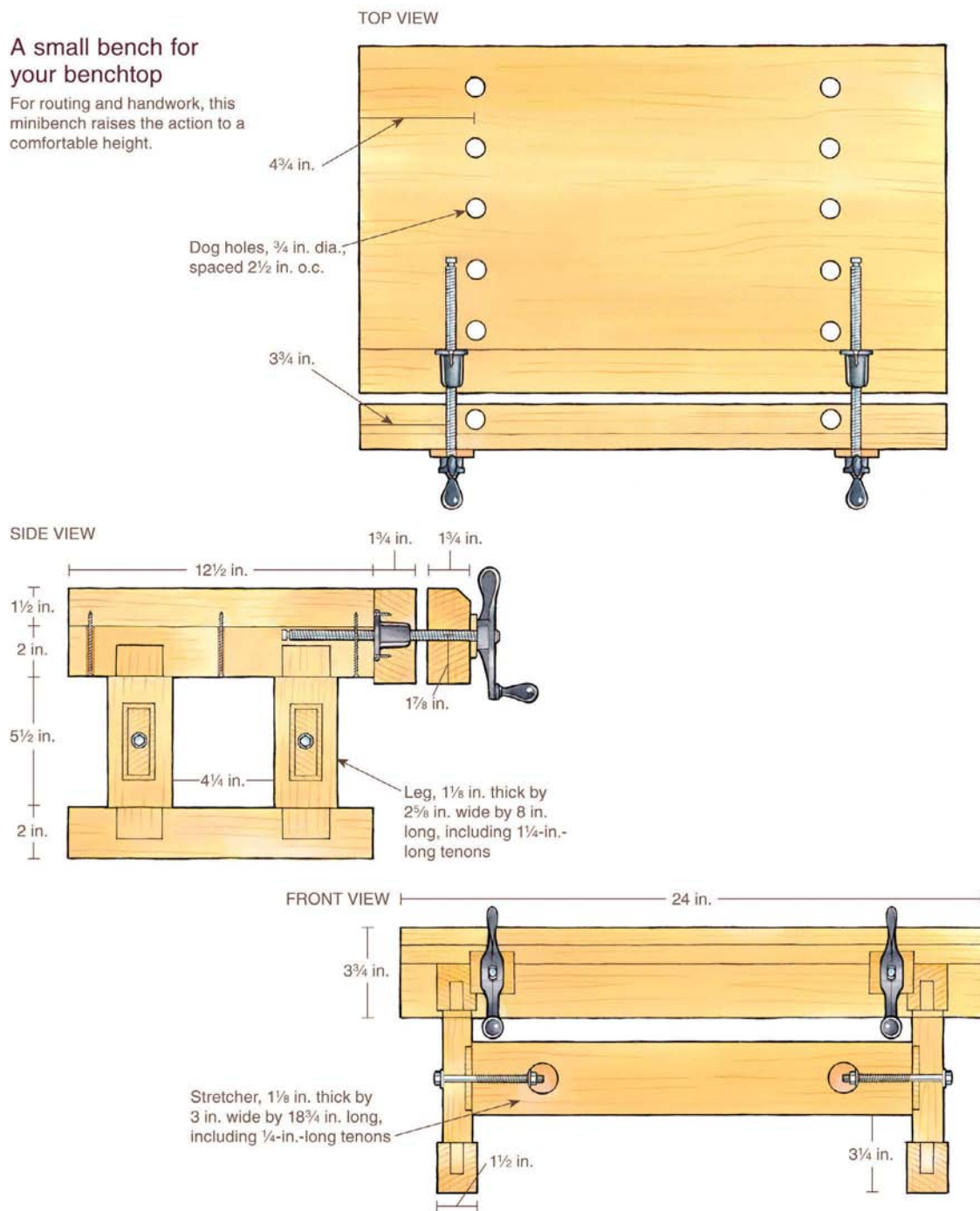
An elevated bench saves your back. This benchtop bench elevates a workpiece several inches above a regular workbench, so it is more comfortable to do such tasks as cutting, carving and routing





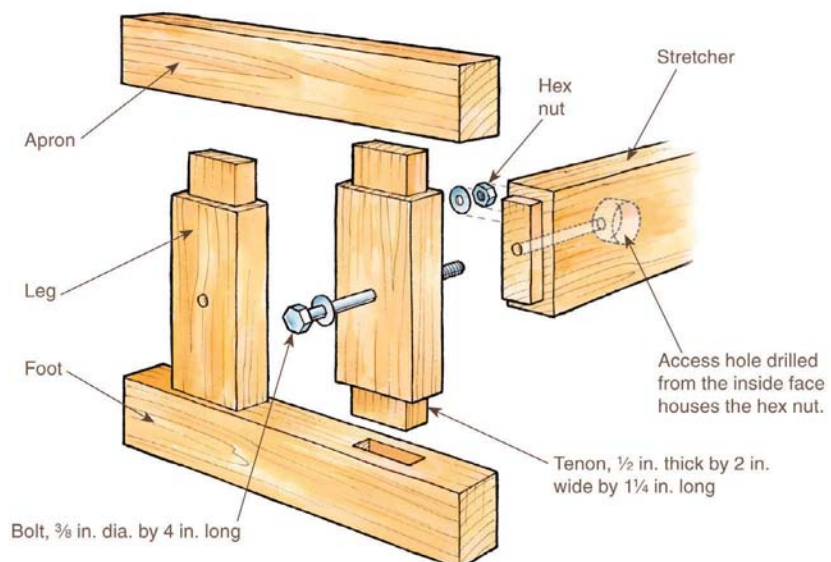
## A small bench for your benchtop

For routing and handwork, this minibench raises the action to a comfortable height.



## Base assembly

The trestles and stretchers are assembled using mortise-and-tenon construction, giving the benchtop bench solid framing.





## The trestle design is simple yet strong

I wanted the benchtop bench to be as sturdy as my regular bench. I settled on a trestle-table design, which ensured a solid bench and simplified construction.

Begin by making the top. It can be sized to suit individual needs, but as a general rule, keep the top small enough to be moved without back strain. Joint and edge-glue the stock, then use a handplane and scraper to level and smooth the surfaces. Cut the piece to width and length.

Next, mill the stock for the trestle base. I chose a mortise-and-tenon joint to connect the legs to the aprons and feet, but half-lap joints would work well, too. Cut mortises in the aprons and feet for the legs, then cut shallow mortises centred on the inside faces of the legs to locate and solidify the bolted joints with the stretchers. Cut and fit the tenons on the legs and the stretchers. The stretcher tenons will not be glued, so it's especially important that they fit without any slop. Now is a good time to drill the

10mm-diameter bolt holes centred on the legs.

The trestle base is screwed to the top through three countersunk holes in the bottom of each apron. Elongate the centre and rear holes to allow for the expansion and contraction of the top – see the drawing for details. To glue up the trestles, spread glue in the mortises and very lightly on the tenons, push the parts together, then clamp up. Check for square and adjust, if necessary.

The stretchers need to be drilled for the bolts that will hold the base together. Use the bolt holes in the trestle legs as drill guides. Dry-assemble the base and clamp it together, but leave access to the bolt holes. Be sure to drill to depth straight; use a self-centring dowel jig, if you need to.

Mark the locations for the hex-nut access holes on the inside faces of the stretchers. Drill with a 32mm-diameter Forstner bit to within 4.8mm of the outside face of each stretcher. The hex nuts and washers go into these holes.



**Glue up the trestles, then attach the stretchers. A long bolt connects the end of each stretcher to the trestles. Note the access hole in the stretcher**

## Vice adds versatility

The front vice makes it easy to clamp a workpiece either to the front of the bench or on top of it. Although I wanted the vice to be simple and easy to make, I also needed it to accept wide boards for dovetailing carcasses. As it turned out, a couple of veneer-press screws satisfied both requirements. Mill the vice jaw and the bench face to their designated thicknesses, then cut them to the same width and length. Mark the locations for the veneer-press-screw holes on the inside of the bench face. Clamp the vice jaw and bench face together and drill through the bench face into the jaw with a 3mm-diameter drill bit. This hole helps align the hole for the veneer-press nut with the one for the screw. Check the dimensions of the veneer-press screws. I used a roughly 16mm-diameter screw, with the outside of the veneer-press nut measuring about 25mm diameter, although it tapered slightly. Drill the hole for the screw in the vice jaw and the hole for the nut in the bench face. The end

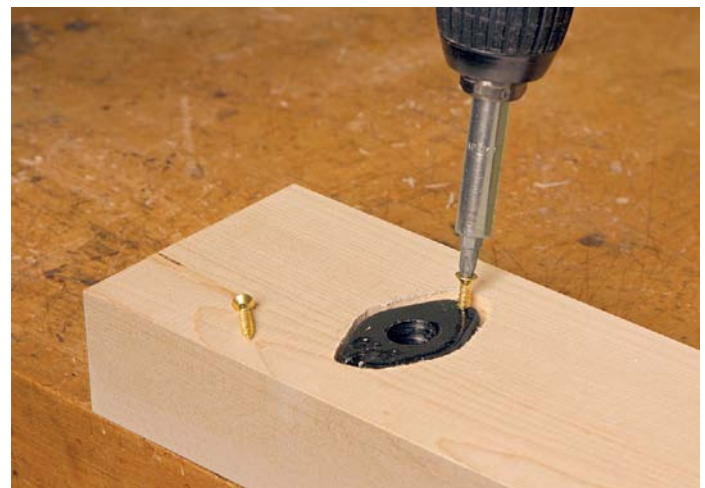
plate that comes with each screw will not be used. You can remove the plate simply by loosening the mounting screw.

Enlarge the hole for the veneer-press nut, concentrating on the end of the hole nearest the benchtop. Tap the nut into place to check your progress. The paint on the nut will rub off when it is tapped in place, leaving a clear picture of the areas that need relief. You can remove the nut by threading the veneer-press screw into place and then tapping the end of the screw – not the handle – with a mallet. Once the nut fits, trace the outline of the flange onto the inside of the bench face. Rout away enough wood to allow the nut, and the screws that will attach it to the face, to sit flush with or slightly below the surface. Screw the nuts into place.

Clamp the bench face into position so that the top edge is flush with the benchtop, and screw the two outermost screws into place – drill and countersink pilot holes first. Turn over the benchtop and check where the

veneer-press screw will come through the face. Depending on the size of your bench, you may have to rout a channel on the underside of the benchtop for the veneer-press screw. Mark exactly where the channel will be, then remove the bench face to rout the channel. Reattach the face, and try to thread the vice screw into place. Remove more wood as necessary.

The veneer-press-screw handles will need more clearance to operate easily. Glue wooden spacers, roughly 10mm thick by 45mm square, over the veneer-press-screw holes. Run the bit you used to drill these holes through the spacers from inside the jaw. The vice jaw will not open automatically when you loosen the veneer-press screws. You can pull it open manually, or refine the vice with two modified 16mm drill-bit stop collars or shaft collars. The bore of the collars might have to be enlarged to fit on the veneer-press screw. A machine shop can do this for you, or you can file it by hand.

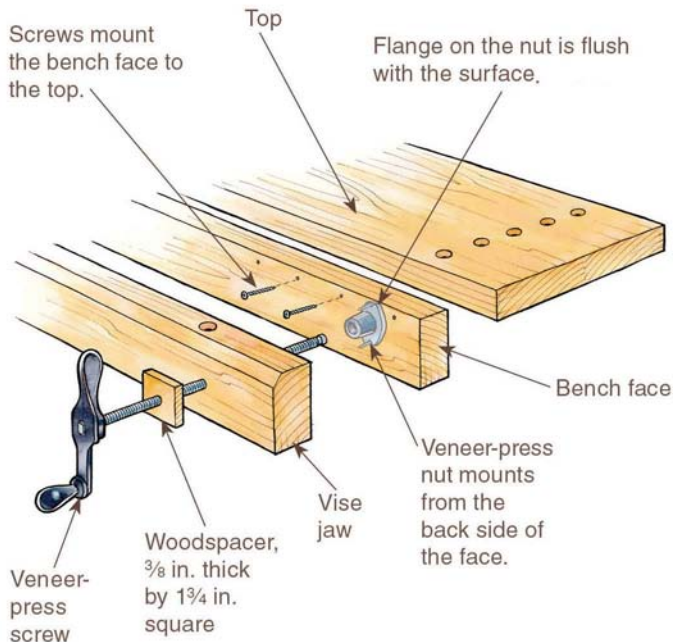


**Inset the veneer-press nuts into the back of the bench face. Trace the flange profile and rout a recess to set the nut flush with the stock. Secure with screws**



## Vise assembly

Before attaching the bench face to the benchtop, drill the holes for the veneer-press screws and install the hardware. The screws will close the vise jaw, but you'll have to pull it open manually.



PHOTOGRAPH COURTESY OF NEW ENGLISH WORKSHOP



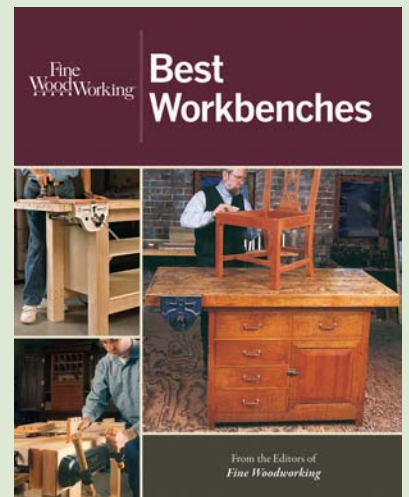
## Bench dogs boost performance

Veritas Bench Pups® allow me to hold a workpiece on top of the bench. Lay out the positions for holes in the benchtop and the vice jaw, being careful to avoid the area over the veneer-press screws and the apron of the base. Bore 20mm-diameter holes and insert the Bench Pups. The benchtop holes

are best drilled on the drill press, with the bench face removed. Reattach the face when everything is positioned properly and works smoothly. Apply glue to the mating surfaces, then add the screws. Finally, mount the base to the top by driving screws through the holes in the aprons. *F&C*



Attach the base. Mount the top to the base by driving three screws through holes - two slotted, one round - in each apron



### Fine Woodworking Best Workbenches

This extract was taken from *Fine Woodworking Best Workbenches* by the Editors of *Fine Woodworking* magazine, published by The Taunton Press in 2012

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# Practical router jigs

**In the first of this two-part article, Chris Yates moves on to the design of several general purpose jigs, this month looking at a production jig**

**T**his month, we design and make the first of a couple of general purpose jigs that are likely to find repeated use in a routing workshop. We will look at how we turn an initial idea into a practical design and consider some of the options open to us, depending on how we expect to use the jigs. We will use some of the hardware we introduced last month and put into practice some of the points covered in the series so far. The first jig is used to cut handholds; the second jig is rather more general purpose, and lets us cut transverse rebates. Examples of both jigs have appeared in photos in previous articles of this series.

For most of us, jigs are like solicitors – we don't want a jig, but from time to time we may need one. One of the recurrent tasks

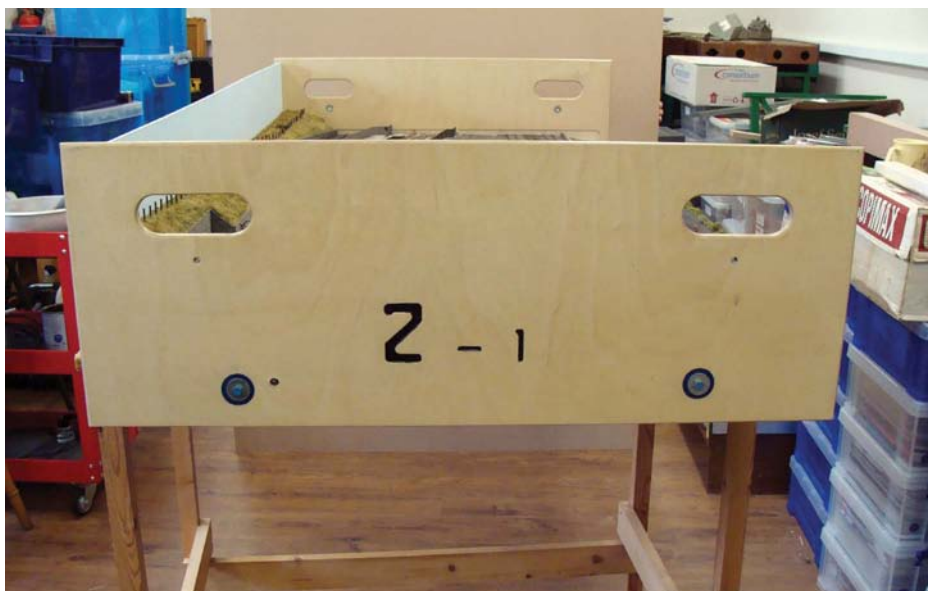
that I undertake is cutting handholds in the protective ends of transportable model railway baseboards, to enable them to be carried safely and comfortably. I would be the first to say that cutting these handholds is not one of the most interesting tasks that I undertake in the workshop, but there does seem to be a steady stream of them to be done. Therefore, I naturally looked to make a jig to help the process – to speed it up and to improve the consistency and quality of outcome.

The examples illustrated are all made in 12mm birch throughout ply – this a medium grade ply that has the great virtue of machinability without resulting in lots of ragged edges and splinters to be cleaned-up by hand. I have used cheaper grades, but they just take longer to get to an acceptable finish.

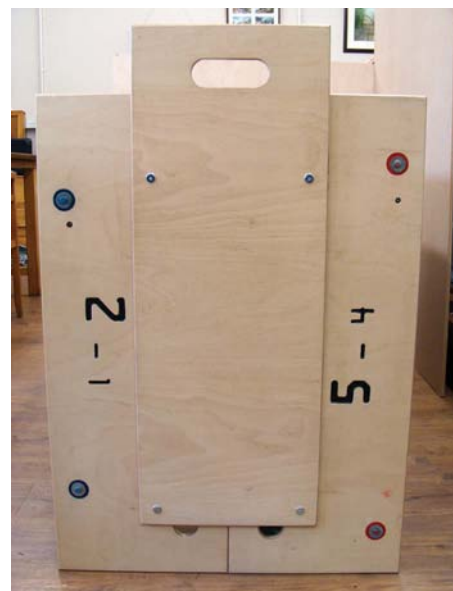
## Jig specification

Before we start work on our first jig, we should give some thought to how we will use it and the range of shapes and sizes of workpieces that we will use it on, as this may save a lot of time later on. In the case of my baseboard projects, I either fit two handholds on baseboard end protectors that can be up to around 950mm wide, or fit a single handhold on a joiner piece that enables two baseboards to be carried face to face. The size of handhold is the other important factor and here we can make use of the flexibility afforded by using a guidebush mounted in our router to change the size of handhold within a range of likely sizes to suit individuals.





**Model railway baseboards can be manoeuvred safely**



**Two people can carry a pair of delicate but heavy baseboards safely and comfortably**

## Master jig

Another variable is likely to be the number of times we expect to use the jig. A quick round-up of the projects I have used it on in the last year or so gives me a total of over 100 handholds, but at the other extreme, you may only plan to use it on a specific project with perhaps a couple of handholds in a piece of portable furniture. Because I expect to make mistakes from time to time as well as using the jig quite a lot, I will make a master jig first and only use this to make the jigs I will use on my projects. As it will have very little use and can be expected not to show signs of wear, I will make it out of MDF as it is easier to cut to the shape I need – I will then replicate it in harder-wearing plywood for the jigs that will do the work

## Cutting the master jig handhold

The hand-hold shape that I use is a simple slot with semi-circular ends. It needs to be big enough in both length and width to generate the largest handhold likely to be required plus offsets for the guidebush and cutter combination – see sidebar in the next issue for calculating the offsets. It doesn't matter how you choose to cut this 'master' slot, but it must end up with smooth sides and ends and no ripples. My chosen method is to use a Forstner bit to cut holes at either end, then jigsaw the waste from between them, keeping 1-2mm inside the lines marking the finished sides. These can then either be finished on the router table by very gently incrementing the distance between the fence and a straight cutter that is set to just above the MDF thickness. Take great care when setting the fence position that the cutter only just approaches the widest point of the semi-circular end at the left-hand side of the workpiece. Then gently move the workpiece to the left until the cutter is in the corresponding location at the right-hand side of the workpiece. At all times keep your

hands clear of the cutter and at the end of the cut, pull the workpiece slightly forward of the cutter before stopping the cutter rotation. Then adjust the fence further back a smidgin and repeat the process, until the one edge is smooth and accurately aligned with the ends of the semi-circular shapes. If at all possible, fit a top safety guard to cover the cutter. Two further safety points: hold the workpiece firmly in your hands – if it is too small to do this, you may choose to cut the template within a larger workpiece and trim to fit afterwards, or even add some temporary handles. And do not try to trim the opposite side by passing the workpiece from left to right with the workpiece sandwiched between the cutter and fence, as there is every chance that you will lose control of the workpiece and, at the least, it may get projected from the

table and it will inevitably get spoilt. When it comes to trimming the second long side, simply flip the workpiece front to back and repeat the process, but note that for this to work, both sides of the slot must be parallel to both edges of the workpiece and it must not be too big to fit on the router table. Let us assume that we now have a fairly good shape cut by machine. The next step is just to smooth it by hand using abrasive paper and a small wooden block or an engineer's file to smooth out any remaining fine ripples in the straight sides of the hole. Where the straight sides meet the semi-circular ends, these can best be smoothed using a finger and very gentle pressure. Bear in mind that any protrusions will be reflected by the router cutter in every handhold cut, so it is worth getting a good finish on the master jig shape.



**Using Forstner bits to cut the round ends of the handhold**



**Jigsawing the waste between the holes**



**Moving the workpiece from right to left and progressively moving the fence further back until a smooth straight edge is formed**



**If the last stage is done carefully, there should be very little to do by hand**



## Making the production jig

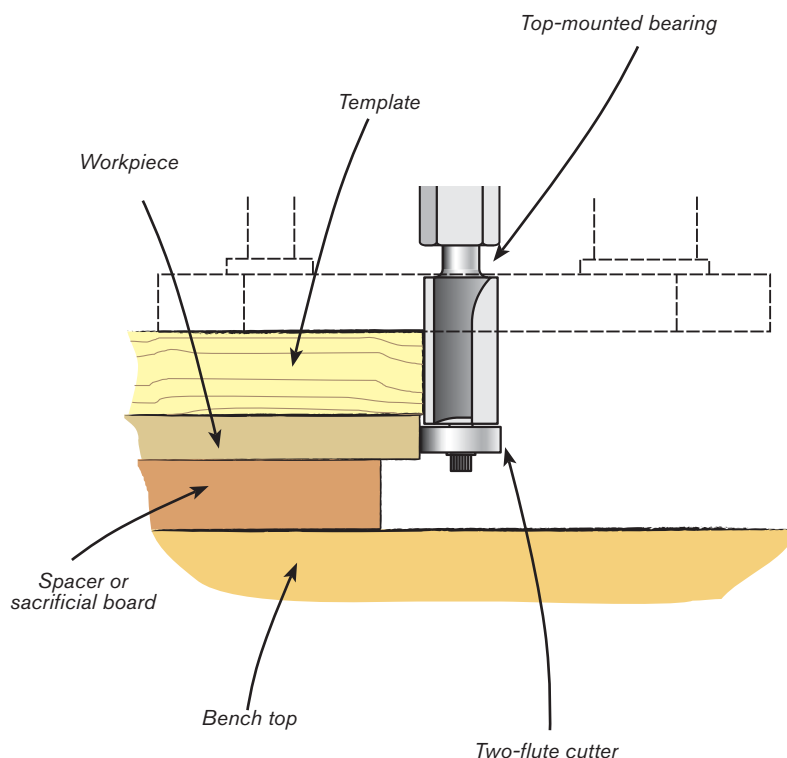
The next step is to make a working jig to fit on the eventual workpieces. In my case, these are rectangular so I usually just fit guide battens to position the jig in the right place on top of the workpiece – it saves a lot of measuring and marking and reduces the opportunity for silly mistakes. However, don't fit these positioning battens just yet, but make sure that the working jig is big enough to accommodate them.

The next step is to cut one – or more – working jigs using the master jig. You do not want to damage the master jig at this stage, or you will probably have to go back to the beginning to make another one, so take extra care.

The master and working jigs will need to be kept together in register, so decide how you want or can do this. Clamps are fine in many cases, but don't forget to leave enough surface area around the handhold to navigate the router.

Select a suitable straight router cutter and guidebush combination and using some offcuts, practise making a working jig insert. The size of the finished hole can be varied by changing the diameter of cutter or guidebush. Remember that the larger the guidebush diameter, the smoother the finished hole will be, as a larger radius guidebush will tend to glide across the tops of any minor imperfections in the edge of the jig, whereas a smaller diameter guidebush will tend to follow such imperfections more closely.

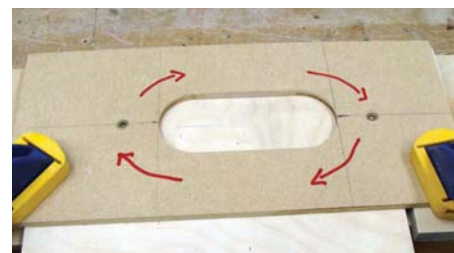
If you expect to cut a lot of holes, you might choose to use a replaceable tipped cutter, as the cutter will be expected to do a lot of work. In any case, make sure that you



**A typical setup for working with a template and bearing-guided cutters with a hand-held router on top of your workbench**

use a bottom cutting cutter – e.g. W-point – as you will have to plunge the cutter through the workpiece.

When setting up the jig and workpiece, remember to include a splinch board underneath the workpiece, or you may have an unintended handhold in your workbench! Then, before actually cutting the first working jig, check the plunge depth and set the turret depth stop to give progressive depths of cut.

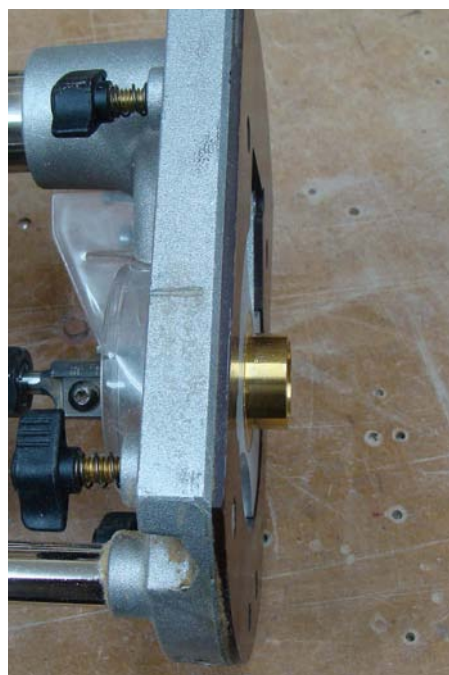


**Master jig temporarily fixed to the blank production jig**

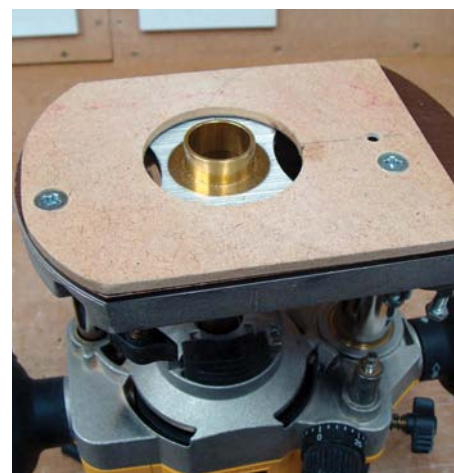
## Not all guidebushes are created equal

When selecting a guidebush, be aware of the depth of shank protruding below the base of the router. Whatever pattern of guidebush you use, remember that the jig material ideally should be at least as thick as the guidebush shank is long. If it isn't, you must either pack the jig above the workpiece; shorten the guidebush shank, use a shorter guidebush or fit a false base to the router. This is most likely to be an issue with the thin master jig, which might well be just 6mm thick, so making special provision for the couple of copy jigs is not such an issue, but I would not want to be bothered doing this for a production run – it pays to think ahead and select material for the working jigs that is thick enough to avoid this problem.

The sequence of photographs in the next issue will show the stages in production of this simple but useful and adaptable jig. Remember to take repeated passes at increasing depth rather than trying to cut the full depth in one pass. Also, plunge the router in the waste area and bring the guidebush to and along the edge of the jig in a smooth movement, guiding it away from the cut edge before changing the plunge depth or removing it, in order to avoid imperfections and burn marks on the jig.



**Using the appropriate Leigh baseplate enables almost any router to accommodate guidebushes. The guidebush in this photo is from UJK Technology, and the router cutter has replaceable carbide tips and is from Trend**



**Fitting a false baseplate to overcome the excessive depth of the guidebush is simple**

### NEXT MONTH

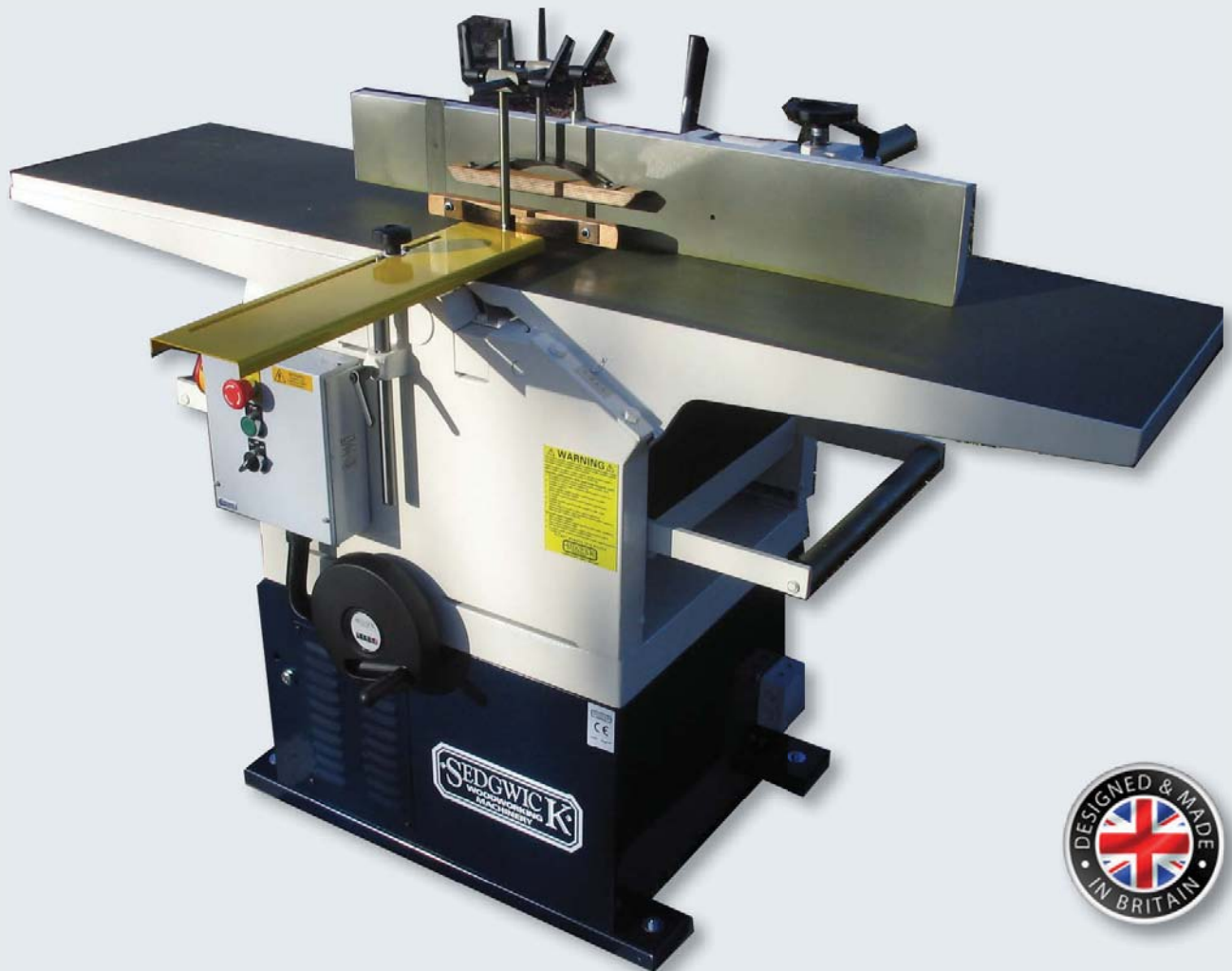
Carrying on from this article, Chris will look at the making stage for the production jig, constructing a stopped rebate jig, positioning and clamping the workpiece, labelling the jigs and developing jigs for more sophisticated tasks *F&C*





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PHOTOGRAPHS BY OLIVER WATERS

# The Apprentice's notebook

**Carrying on from last month's article, Waters & Acland student Jim Cooper looks at tackling the all important secondary bevel**

**A**fter three articles we really are close to having a plane that works like a dream, one that gives high quality feedback and can produce a beautiful finish in even the most awkward of timbers.

Once the back of the blade is flat – see issue 229 – and the primary bevel is ground – see issue 230 – there are just two more tasks required to complete the sharpening process: the grinding of the secondary bevel and the removal of the burr created during grinding. The reason for developing a secondary bevel is that it makes the process

of resharpener very much quicker. In the absence of a secondary bevel, the whole primary bevel would have to be addressed each time you need to sharpen the blade.

The grinding of the secondary bevel is done using waterstones and a Veritas Mark II honing guide although other stones and guides will work equally well. The burr created when making the secondary bevel is removed using the Scary Sharp system – smaller glass plate – and a leather strop. Several different waterstones are required. Their number and coarseness depends on

personal preference and will vary between makes. See Brian Greene's article in *F&C* 226 – a typical combination is 1,000, 4,000 and 8,000 grit.

The waterstones need to be flattened before use. Also, since the waterstones are designed to continuously release grit while in use, the flattening process needs to be repeated regularly. There are a number of different techniques for flattening waterstones; however, discussion of the various techniques falls outside the scope of this article. ➤



## The process

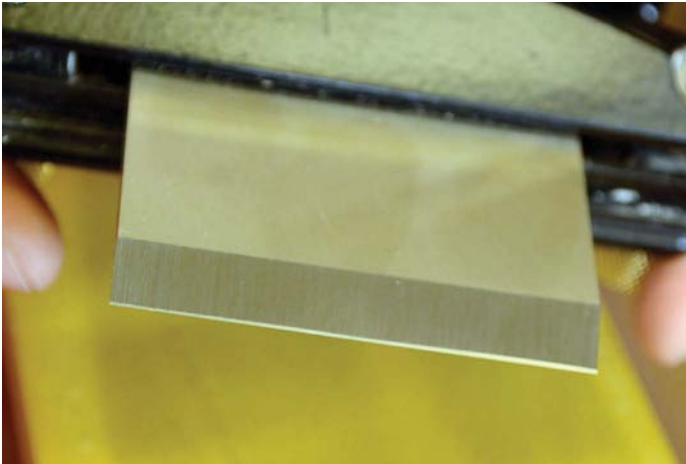
The Veritas Mark II honing guide is used to hold the blade at a constant 31.5° angle relative to the surface of the waterstones; this allows the development of a small secondary bevel at a known and consistent angle.

With the blade suitably mounted in the honing guide and starting with the 1,000 grit waterstone, take four backward strokes with even pressure across the whole of the blade followed by four backward strokes

with pressure focused on each side of the blade. Progress should then be reviewed. What we are looking for is the formation of a clear secondary bevel across the whole width of the blade together with a smoothly curved cutting edge with a gap of 0.1mm to 0.2mm at each end of the cutting edge. The above process should be continued until a smooth, correctly shaped cutting edge has been developed with a secondary bevel

across the whole length of the cutting edge. The process should then be repeated using the 4,000 grit and then the 8,000 grit stones until there is a mirror-like surface across the whole of the secondary bevel.

It should be noted that when resharpener the blade, it is usually sufficient to use only the 4,000 grit and 8,000 grit waterstones, unless the tip of the blade has suffered damage.



A small and shiny secondary bevel



Offset pressure maintains the curvature when using the honing guide

## Removing the burr

To remove the burr that has been created during the regrinding process, start by using the 15 micron film, making the same kind of pull strokes as those used during the flattening of the back of the blade – see last month's article for more details. The process of burr removal should be checked approximately every 10 to 20 strokes. It is a

good idea to check that the burr has not been hooked over onto the bevel side of the blade; this can be done either by feel or by visual inspection in a magnifying glass. If the burr has indeed hooked over, it should be gently pushed back by hand. The number of strokes required to remove the burr may vary considerably, dependent for example

on the hardness of the blade material and the extent of previous grinding. Once the burr has been removed, the blade should then be polished using the 9 micron film – some 10 to 15 strokes. The last stage of the process is to give the back of the blade one or two backward strokes over a leather strop.



Pull strokes on the 3M micro finishing film



Feeling for the burr

## Next month

It's taken hard work and patience to get to this stage and the steps we've covered so far have taken a good deal longer to explain in detail than carry out in practice. All that, however, can be undone in an instant if care is not taken while fitting the blade back into the body of the plane. In next month's article, we will look at how we teach our students

to set up the plane for use and finally, we will make some shavings!

To see the full video sequence of tackling the secondary bevel, plus many other instructional videos as they appear in the series, visit the Waters & Acland YouTube channel: [www.youtube.com/user/watersandacland](http://www.youtube.com/user/watersandacland). *F&C*






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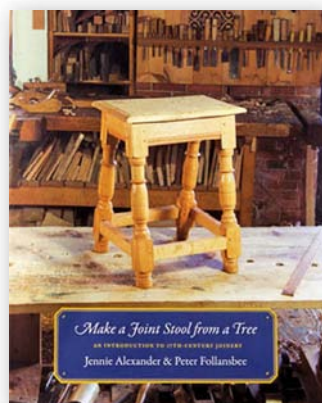




# Workshop library

Derek Jones looks at *Make a Joint Stool From a Tree, New Complete Guide to Bandsaws* and we also have a great book offer on *Taunton's Complete Illustrated Guide to Using Woodworking Tools*. Website of the month is from Paul Sellers

## BOOKS



### Make a Joint Stool From a Tree

by Jennie Alexander & Peter Follansbee

I think it's natural for a lot of furniture makers to shy away from making chairs or any other kind of seated furniture. They appear complicated and made up from too many parts that come together at funny angles. Well, what if I told you there was a way to build such items that makes a mockery of all that by embracing the most rudimentary aspects of construction to achieve a product that will outlast any attempt at tricky joinery?

Joined furniture, as it's known, has its roots way back in the 17th century and that's the workshop where I suspect these two authors would feel

most at home. *Make a Joint Stool From a Tree* starts by teaching the reader to identify pieces from this period and recognise the tell-tale signs of these canny craftsmen. Yes, there are plenty of notes on form and function but the nitty gritty, the stuff that makes you want to run into the woods and hack down a tree, is found in the details left behind by the makers.

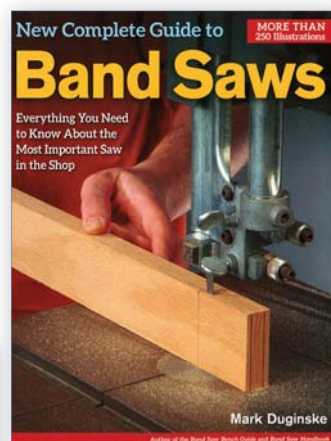
The joint stool has simply got to be one of the most well thought out and appropriate pieces of furniture ever conceived. By the time you've finished the first chapter, the penny will drop and you'll begin to understand its simplicity and start to wonder if what has evolved since can actually be regarded as progress. Alexander and Follansbee spent the best part of two decades researching, dismantling and then recreating examples of 17th century joinery to reach this point and the result is as fine a 'how to' book as you will find anywhere. The instructions span the divide between beginner and experienced woodworker as both will benefit from understanding the lessons contained within the 115 pages and 200 colour photographs.

The interest in this style of woodworking has been on the increase in recent years, mainly because of people like Alexander

and Follansbee. They have more than just deconstructed pieces of furniture; they have deconstructed an entire making process that would stand any student of furniture design in good stead. The chapters are few and long so there's plenty of technical information on how to execute the draw-bored mortise and tenons that are the stool's only means of staying in one piece. There is no hardware and no glue, so no down time waiting for things to dry.

If all you've made to date is case furniture based around 90° rectilinear joints, then do give this a try if only to shake loose any preconceptions about contemporary construction. About the only thing not covered in this book is how to chop a tree down but then you should be leaving that to the experts anyway.

Published by Lost Art Press  
£34.95 115 pages  
ISBN: 9780985077709



### New Complete Guide to Bandsaws

by Mark Duginske

It's often said that you can enhance the performance of a new bandsaw by 90% just by installing a new quality blade. Unfortunately, it's true, as typically the ones that come with the machine are generally poor quality. Having acquired

a bandsaw and installed a good blade, the next thing you'll need to do is get up on all the other tweaks that make up the remaining 10%. For that, look no further than *New Complete Guide to Bandsaws*. Mark Duginske has penned a number of books on the subject and this latest volume represents the entire collection, leaving no stone unturned. So in depth in fact that there is sufficient information to be found on restoring an ancient machine, including producing castings for broken pieces.

The other thing you'll hear people say about bandsaws is that they are the most important saw in the 'shop. Yes, that's true, but only if it's set up correctly and you guessed it, fitted with a good quality blade. If you can't make that last statement happen shortly after reading this book, then maybe it's about time you took up fly fishing instead.

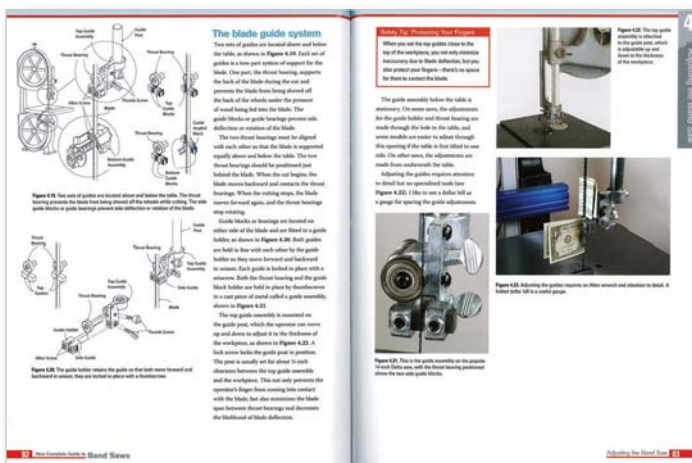
At 187 pages, including the glossary, Duginske begins with identifying the saw that is right for your 'shop. There are diagrams on practically every page to support the colour photos that explain the complete assembly of all the major components found on a bandsaw. If you're familiar with the Haynes manuals of the '70s, you'll know what I mean.

As well as practical advice on bandsaw maintenance, the author has also included plenty of project style examples on how to complete many of the most common tasks you will need, plus a few you probably won't. Don't skip over these sections, though, as the information within can always be tweaked to suit or act as inspiration for future projects. If there's one thing that hasn't been covered well, it has to be the complicated manoeuvre required to wrap a bandsaw blade in a figure of eight. Please, please don't let that put you off because nobody has



Assembling the stool – look, no glue!





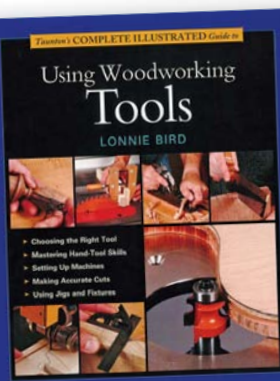
Just one of the handy sections, this time covering adjusting your bandsaw

ever managed to put that into words that make sense let alone try and sketch it out. For that particular piece of information, turn to YouTube. For everything else, turn to *New Complete*

*Guide to Bandsaws*  
by Mark Duginske.

Published by Fox Chapel  
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ISBN: 9781565238411

## BOOK OFFER



**Taunton's Complete Illustrated Guide to Using Woodworking Tools**  
by Lonnie Bird

Lonnie Bird's *Using Woodworking Tools* is an enthusiastically written guide with over 850 good quality photographs and simple-to-understand illustrations on using hand and power tools. The book is a good mix of text and images, with a photograph-based contents, organised for quick access. As Lonnie points out, he addresses in the guide using 'all tools found in a modern workshop', with chapters on working with wood,

outfitting the workshop, benches and clamps, gluing and assembly, measuring and marking hand tools, planes and planning, and much, much more!

As with most Taunton guides, a short chapter on 'how to use this book' features at the beginning and large text is used throughout the book, great for reading while standing in the workshop. Packed with information, do not be intimidated as Lonnie explains his methods, hints and instructions for using specific tools very clearly, breaking up the text with a number of information boxes, for quick reference and these are easy to spot while browsing the guide.

Lonnie looks at helping you choose the right tool, as well as mastering hand tool skills, setting up machines, making accurate cuts and using jigs and fixtures. The step-by-step picture instructions are clearly labelled to the step's text, so there's no confusion while reading. Lonnie has very helpfully included some 'further reading' materials at the back of the guide, for those who are interested in exploring the subject further.

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## Website of the month Paul Sellers



### Paul Sellers' Biography

I describe myself as a lifelong amateur woodworker. My first day's work began in a small joiner's workshop in Stockport, England in 1965. No masterpieces ever emerged from that workshop that I knew of, but it was there that my life working wood began alongside real woodworkers. My amateur status comes from the fact that whether I got paid or not I always worked wood. Professionals do it only for money. I have been privileged to work with wood every day for 48 years. In the beginning, no one knew me and here, two thirds through, still no one knows me. But my work and my designs gained the approval of President Bush, Senator Gramm and two of my larger pieces now grace the Cabinet Room of the White House as part of the White House Permanent Collection there.

I have made canoes, built a cello for my son and had my designs copied by woodworkers who liked my designs and needed to make a living.

My world changed when I started apprenticing others to make wood work for them. I came across a whole world of woodworkers, hundreds of thousands of them, who never touched a hand tool, carved a rosette, inlaid a panel or even cut a basic dovetail. They never stopped asking me where they could gain the skills I had. Soon they began asking me to train them at weekends in my shop. I couldn't help myself. My love for working wood didn't belong to me alone. In the evenings I taught children by the dozen for twenty years pretty much week in week out. Out of those babies came the next generation of craftsmen who progressed into apprenticeship, became journeymen and finally ended up as craftsmen in their own workshops.



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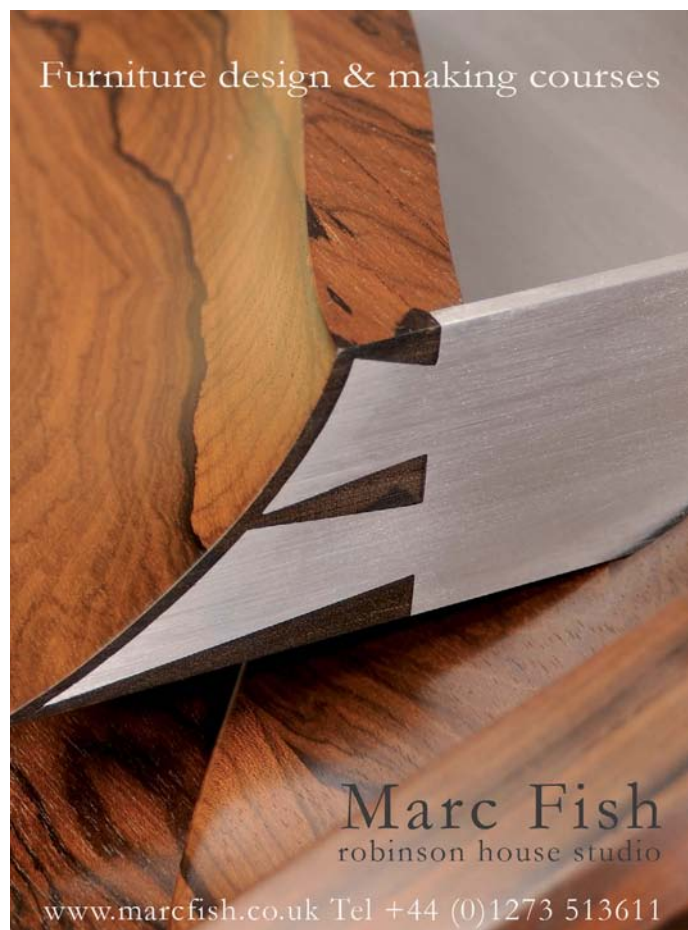
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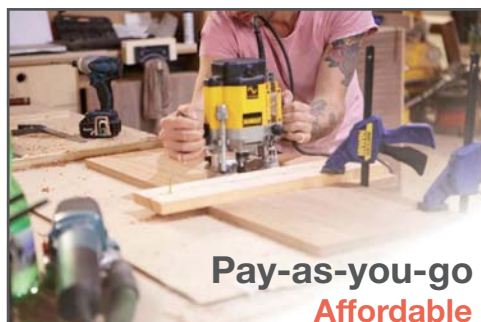
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# UNDER THE HAMMER: Early 19th-century marquetry and pen-work centre table

**We bring you a fantastic lot from Bonhams' recent Fine English Furniture and Works of Art sale**

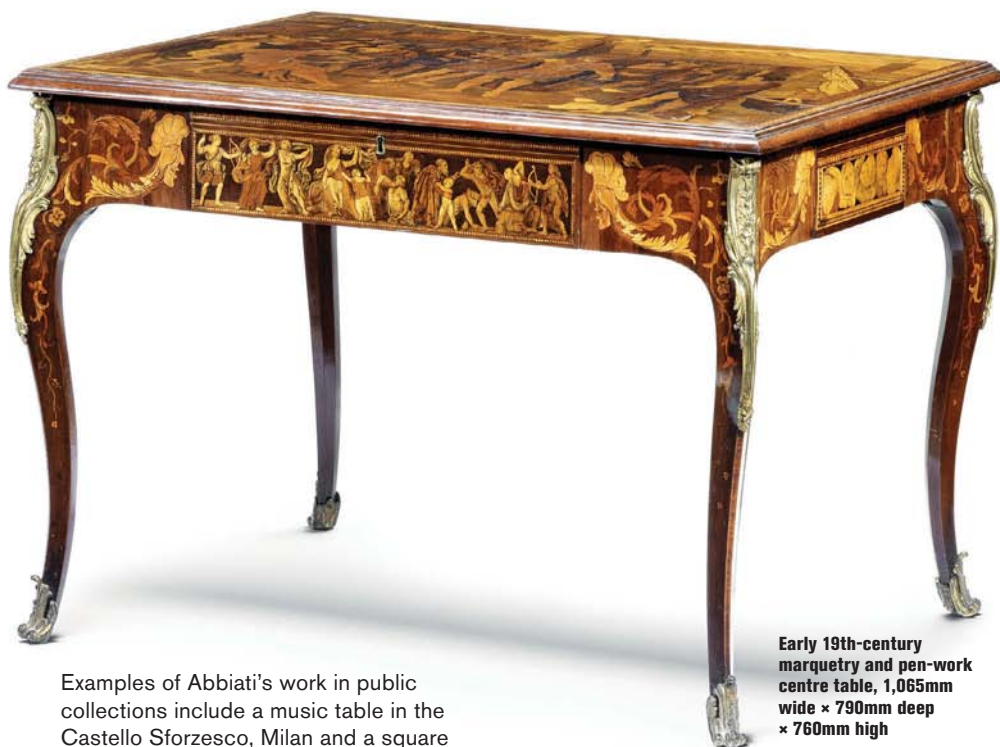
**T**his stunning centre table features an Italian top by Francesco Abbiati and is dated 1806. The base is stamped twice 'E.H.B', which stands for Edward Holmes Baldock.

The rectangular top is inlaid with a scene depicting a king holding a dagger, signed to the lower left corner 'Fran.co Abbiati/ 1806', within a framed border. Above this is an inlaid frieze fitted to the front with a drawer inlaid with figures with the sides featuring framed panels inlaid with various heads. The back is inlaid with scrolling foliage and palmettes, each angle with masks and further foliage. The piece is mounted on cabriole legs each headed by a scrolling foliate clasp on scrolling acanthus-cast sabots.

## Francesco Abbiati

This rare marquetry panel table is an important addition to the oeuvre of the highly accomplished but little known cabinetmaker and intarsiatore Francesco Abbiati. He was active as a cabinetmaker during the late 18th/early 19th century, who originated from Mondello near Lake Como in Lombardy. Abbiati is first recorded in correspondence of 1783 as supplying a 'Tavola matematica' to Maria Carolina, Queen of Naples. He moved from Lombardy to Rome by 1787, where he worked in the Campo Marzio and is known to have supplied three as yet unidentified pieces to the Court of Madrid. Indeed, according to a letter to Queen Maria of Spain, wife of Carlos IV, Abbiati moved to the latter town in 1791. The most latest mention of this cabinetmaker appears to be in 1828 when he received an award for his skills in 'intarsio'.

The scene to the top of the table may be inspired by an original source, such as the wall paintings from the Baths of Titus in Rome which were part of Emperor Nero's Domus Aurea. Engravings of these paintings were produced by Nicolas Ponce and published in 1796 in *Descriptions des Bains de Titus*, Maison Doreé.



Examples of Abbiati's work in public collections include a music table in the Castello Sforzesco, Milan and a square centre table in the Getty Museum, Los Angeles. A music table signed by Abbiati is also in a private collection.

## Edward Holmes Baldock

Edward Holmes Baldock (1777–1845) is listed in London Trade Directories of the early 19th century in various capacities. He first appears at 7 Hanway Street, London in 1805 described as a 'dealer in china and glass' and by 1821 as 'an antique furniture and ornamental furniture dealer'. By 1826 the various facets of the business included 'buying and selling, exchanging and valuing china, cabinets, screens, bronzes, etc.' From 1832–1837 he is recorded as a purveyor of earthenware and glass to William IV and later a purveyor of china to Queen Victoria from 1838. Baldock is known to have imported goods and furniture from the continent, buying principally in Paris but also in Italy where he was in contact with various dealers. An instance of this was his involvement with the abbé Cellotti in the importation of the 'Borghese' pietre dure top for William Beckford. Furthermore, a pair of tables by Brustalon with marquetry tops by Lucio and Antonio De Lucci are also thought to have been bought by the fifth Duke of Buccleuch through E.H. Baldock

in 1830–40, which were sold at Sotheby's London, on 6 July, 2011. One is now in the Victoria & Albert Museum and the other in the National Museum of Scotland. In addition to Baldock's documented dealings with Abbé Cellotti, it has also been suggested that another one of his trade partners was the Italian dealer Gasparoni, who was active in Milan and Venice during the 1830s. It therefore seems likely that Baldock's Italian business connections are the source of the present marquetry top by Abbiati.

For more information on this and other lots, see [www.bonhams.co.uk](http://www.bonhams.co.uk). F&C



The rectangular top of the table is inlaid with a scene depicting a king holding a dagger



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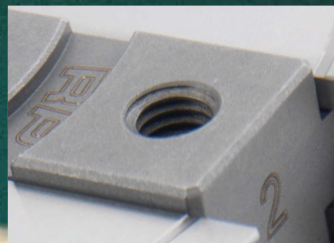
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